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Railway Reorganisation Scheme

SUBJECT to the approval of the House of Lords, which was debating the motion as we went to press, the Draft British Transport Commission (Organisation) Scheme Order, 1954, will come into force within the next three months. It was approved by the House of Commons last Tuesday, after a debate which was largely a re-statement of the arguments put forward in the discussion on the White Paper. Mr. John Boyd-Carpenter, Minister of Transport & Civil Aviation, emphasised that the chain of command would run from the Commission to the six area boards and from the boards to the Chief Regional Managers. The Commission, he stated, hoped to be able to announce the initial composition of the boards next month. The full seven members of each board are not to be appointed at once, but additional members will be added from time to time. Despite the protest from Mr. Ernest Davies, Member for Enfield East, who led the debate for the Opposition, no announcement of the remuneration of members of the boards was made. Mr. Davies said that many members of the Opposition were still unconvinced of the necessity for setting up "these superfluous area boards," but in his strictures on the lack

of technical knowledge of board members he seemed to have forgotten that the directors of many firms engaged on technical work have no detailed knowledge of the work performed, yet prove highly competent in the determination of policy—which is what is envisaged for the railway area boards. Mr. Hugh Molson, Joint Parliamentary Secretary to the Ministry of Transport, pointed out that the Commission, with the help of its technical staff at headquarters, would decide policy in matters such as the standard of track maintenance and the types of locomotives and rolling stock to be built. The area boards would control workshops in their areas and be responsible for the actual production. The Commission would retain questions of wages and labour negotiations in its own hands. Mr. Molson's statement that the purpose of setting up the boards "is to ensure that the organisation administering the railways is not only assisted by general knowledge of how to run big concerns but is also generally representative of the people living in a particular area" adds little to what has been said in the past few months.

British Railways Electrification Schemes

SOME indication of the form which the British Transport Commission plans for the re-equipment and modernisation of British Railways are likely to take was given by Mr. John Boyd-Carpenter, Minister of Transport & Civil Aviation, in a reply to a Parliamentary question put last week by Mr. Ernest Davies, Labour member for Enfield East. He had asked what electrification schemes were in hand and were being planned in detail, and the Minister, after enumerating the Shenfield-Chelmsford and Shenfield-Southend lines, and the extension of the Manchester-Sheffield scheme as far as Rotherwood marshalling yard, said that detailed planning for the Tilbury line electrification is in hand and that some preliminary engineering work has started. He then mentioned modernisation plans, revealing that these will include further electrification schemes. Mr. Boyd-Carpenter would not comment on the priority given to the Liverpool Street-Enfield line until plans became available, neither would he reply to a supplementary question on electrification in Scotland. The development plans of the Commission should be available before the end of the year, and the extent of the new proposals will not be known until then, but it is clear that they will include at least some electrification, whatever may be the long-term policy as to motive power.

Discussions on the Great Northern Railway of Ireland

LORD GLENTORAN, Northern Ireland Minister of Commerce, and Mr. William Norton, Minister for Industry & Commerce in the Republic of Ireland, have met in Dublin to discuss the operation of the Great Northern Railway. It is understood that one of the subjects discussed at their meeting was the report of the first year's operations of the Great Northern Railway Board, which was established in September, 1953. No details of the report, which the Governments in Dublin and Belfast are now considering, have yet been published, but it is believed to contain important recommendations on the integration of the rail and road services in Ulster of the Great Northern Railway and the Ulster Transport Authority, the substitution of diesel for steam locomotives on the Great Northern Railway, and the closing of branches. Any redundancy of staff caused by closures of line in Northern Ireland will have repercussions in the Republic, as the railwaymen's unions operate in both countries, and this aspect will certainly have engaged the attention of the Ministers.

Mr. Blee on British Rate-Making

MMR. DAVID BLEE, Chief of Commercial Services, British Transport Commission, told the Royal Commission on Agreed Charges in Canada that it was recognised in Great Britain that railways should be as free of regulation as their competitors if they were to pay their way and progressively modernise and extend services. The

Canadian National Railways introduced Mr. Blee as a witness in support of the agreed charge system of competitive rate making. He said that the Transport Act of 1953 had gone a long way to achieve this for British railways and in particular allowed them to make agreed charges and other agreement rates as a private matter between the parties and subject neither to the approval of any court nor to publication. The agreed charge had long been a commonly-used device in British rate-making practice. As in Canada, the British agreed charge arrangements had been hedged about with regulatory provisions, but under the 1953 Act all such restrictions were removed. "Over the period of one hundred years the wheel has turned a full circle," commented Mr. Blee, "and we are back in Great Britain to much the same freedom from statutory control of railway charges as characterised the position in the earliest days of railways." British consignors welcomed the resurgence of competition and particularly the greater flexibility and speed of railway rate negotiations.

Overseas Railway Traffics

GOLD Coast Railway receipts for September were £134,718, a decrease of £42,442 compared with September last year. The aggregate receipts for the 25 weeks of the financial year amounted to £1,723,250, a decrease of £190,082 compared with the corresponding period of 1953-54. Railway operating revenues of the International Railways of Central America for August were \$1,046,822, an increase of \$56,107 compared with the same month last year. The September revenue rose to \$1,064,698, an increase of \$168,044 over the previous year. The aggregate revenue for the nine months was \$10,344,098, a decrease of \$853,634 compared with the first nine months of 1953. Antofagasta (Chili) & Bolivia traffic receipts for the 10 weeks to November 12 averaged £76,554, compared with an average of £93,424 for the same weeks of 1953, an average decrease of £16,870. The actual receipts for the week ended November 12 were £75,053. Aggregate receipts from January 1 to that date were £3,510,958, against £4,350,319 for the same period last year. The exchange rate during the 10 weeks for bolivianos in both years was 538.14 to the £. The rate for pesos, which remained steady over this period in 1953 at 348.60 to the £, fluctuated between 575 and 656 to the £.

Railways into the Canadian North West

THE prediction that within 10-15 years some hundreds of miles of railway will be built in N.W. Canada has been made by Mr. R. Gordon Robertson, Deputy Minister for Northern Affairs & National Resources in the Canadian Government. Like Western Canada in 1880, the territories of Northern Canada are crippled today for lack of economical transport, but Mr. Robertson believes that when railways penetrate them they will boom as the West did 70 years ago. At present it is expensive both to move minerals out of the north and bring in supplies. This is an obstacle which railways will remove. The oft-cited climatic problem does not exist, according to Mr. Robertson, who says that, because the arctic temperature boundary runs diagonally, not horizontally, across N.W. Canada, the average snowfall in those territories is far less than that of the Montreal district. There are few roads in the North West, and the rivers are navigable for only four months of the year.

Costly Relocation on a Mainly Freight Line

YET another instance arises of line-improvement works in the U.S.A., the continuous stream of which has been flowing for so many years. This particular work, which is on the Missouri Pacific Railroad and described on another page, is perhaps unusual, in that it involves costly earthworks and bridging to improve the operation of 25 miles of single-line railway over which only one passenger train each way daily is scheduled. To justify such expenditure, freight traffic is evidently heavy, but no figures relating to it have yet reached us. In the section on which work

is now proceeding there is a saving of 16 per cent in length over the old line, yet the ruling gradient is eased from 1 in 88½ to 1 in 143. It would thus appear that the old ruling gradients were short and, but for the severe curvature, might have been treated as momentum gradients. There is no doubt that a greatly improved line and considerably reduced operating cost will have been secured when the whole 25-mile line has been realigned and regraded.

Family Fares in the U.S.A.

IN the U.S.A. the "family fares" scheme has proved so attractive that 34 railways in the U.S.A. and two in Canada are now participating in it. In general, the head of the family pays the full return fare; the second parent and children aged 12-21 half-fare; and children aged 5-11 one-quarter; while those under five travel free. The Western lines now extend the privilege to single as well as return journeys. To relieve week-end traffic, outward journeys on the Western lines must be made on Mondays, Tuesdays, and Wednesdays, but return journeys on round trip tickets may be on any day, and break of journey is allowed at any point en route. In the Eastern territory there are no restrictions on the days on which the family tickets may be used, but they must be over a distance of at least 100 miles from the starting point. The U.S.A. scheme is basically similar to the concessions to families accorded by the French National Railways and some other systems, and believed to have been initiated many years ago in France.

Results of Other American Fare Reductions

FARE reductions of other descriptions on U.S.A. railways also are claimed to be justifying themselves by the increased business that they are attracting. The Pennsylvania Railroad, for example, recently began issuing "coach" (third class) tickets to Pittsburgh from Philadelphia, Baltimore, and Washington, at a 30 per cent reduction, available by any train carrying coach accommodation, and has been selling them at the rate of 2,000 weekly. The New York, New Haven & Hartford ten-ride six-month bearer ticket scheme in the State of Massachusetts has produced more than 1,000,000 additional passengers since its introduction. It is not clear, however, whether the revenue derived from these reduced fares, even although bookings may be heavy, compensates for what appears to be a gradual decline in full-fare traffic occasioned mostly by air competition. With the constant rise in the cost of building and maintaining passenger rolling stock, and of operating passenger trains, drastically reduced fares may be doing little more than helping to fill trains which in many cases do not seem likely to pay their way.

Lifting the Point Tongue

THE need for a means of easing the load when reversing points has made itself felt of late years with the laying of heavier rails. One such device, introduced by Monsieur Jeanpierre, of the French National Railways, is described in our contemporary *La Vie du Rail*. It consists of a roller carried by a bracket on the inside of the tongue just beyond the second slide chair from the nose and normally slightly clear of an inclined runway secured to the sleeper. In this position the closed tongue is carried by the slide chair in the ordinary way. When the tongue begins to open, however, the roller travels up the runway and holds it just above the chair faces for a certain distance behind the point so that the bearing surfaces now only need lubricating near the heel. The device itself has grease lubrication. A reduction in effort of 20-40 per cent is said to have been obtained, with a large annual saving in costs of lubricating point layouts, both in material and labour. In many cases it has proved possible to replace old regional designs by present standard point equipment, without altering the signalbox arrangements or putting in additional levers to work former coupled points independently. This device recalls that long used in the

Netherlands, adopted to reduce the length of lock bars, but there the tongues rise and fall and are not held lifted when open.

Swiss Electric Locomotive Mileage

THE new conception of double-bogie Bo-Bo electric locomotives for high power which began during the war years with the 4,000-h.p. locomotives for the Bern-Lötschberg-Simplon Railway, and extended later to the numerous 2,600-h.p. units of similar construction on the Swiss Federal Railways, was epoch-making both in mechanical and electrical aspects. The then new S.L.M. bogie incorporated is notable as a smooth rider, and any doubts that may have existed as to the maintenance and repair costs of electrical or mechanical portions of these locomotives have disappeared with time. In fact, the position in regard to such matters seems to get better as time goes on. Within the last year the time occupied for repairs has been improved to the extent of as much as 20 per cent, compared with 1952-53, and this has meant that in the summer season an average of four more of these locomotives has been available to the S.F.R. traffic department, and incidentally saved about £400 a day compared with the cost of using steam locomotives to replace them. Moreover, the distance between heavy repairs does not seem to diminish, and locomotive No. Re 7/4.439 has just run 472,000 miles between two heavy overhauls.

The Background to Railway Wage Negotiations

THE history of the wage negotiations affecting British Railways in the last twelve months is complicated and equivocal. During the year both the British Transport Commission and the Railway Staff National Tribunal appear to have changed their views on the amounts of wage increases which the Commission could afford. The attitude at the end of 1953 was that the pay improvements then granted or promised were the limit of what was practicable. Since then, with no great change in revenue, considerable concessions have been made. It is doubtful whether the market value of labour was considered when the Tribunal award was formulated in December last. This award, of 4s. a week, which averted the threat of a strike by the National Union of Railwaymen, was agreed to by the Commission and by the three railway trades unions, the other two being the Transport Salaried Staffs' Association and the Associated Society of Locomotive Engineers & Firemen, subject to conditions. The more important of these were an agreement between the Commission and the unions to examine jointly the whole wage and salary structure of the Commission and to discuss means of increasing railway efficiency. The Commission announced that there would be a further improvement, within two months, on a percentage basis of the rates in operation before the award. This 4s. a week increase was expected to cost £5,500,000 in a full year, which additional cost the Commission was only prepared to face when partially offset by the economies which it was hoped would be realised from the measures to be determined after joint examination.

Clearly the cost of this increase could not be met without increasing revenue, and almost immediately, the Commission applied for authority to increase railway freight and certain other charges by 10 per cent. Early in January the Commission offered to increase wages by 6 per cent over the rates prevailing before the 4s. a week flat increase. The offer was accepted by the unions, and the discussions on wage and salary structures and on efficiency were left to take their time. The 6 per cent increase was expected to cost some £12,500,000 a year, and it implemented the promise of a further increase over the 4s. flat award within two months. The acceptance of the N.U.R. was on the understanding that this was only an interim settlement. Discussions on increasing efficiency started on February 9, and the increased charges requested by the Commission were authorised by Mr. Alan Lennox-Boyd, then Minister of Transport & Civil Aviation. These were to operate from

March 1 and were expected to provide some £6,500,000 towards the wage increases; the other £6,000,000 was to come from the economy and efficiency measures being discussed. Examination of the wages and salary structures also began in February. Proposals put forward by the Commission in April were not accepted and discussions continued.

In August, the Commission, presumably in hopes of cutting its costs through enhanced efficiency, as there seemed to be no prospect of further augmenting revenue, offered wage increases estimated to cost an additional £6,000,000 in a full year. This offer was rejected by the unions and the N.U.R. put forward counter-proposals which it claimed would cost some £12,000,000 a year; the Commission believed this figure to be £18,000,000. The contentious points included the amount of differentials in wages, and also lodging turns as a means of reducing operating costs. At the end of August the N.U.R. was considering an approach to Mr. John Boyd-Carpenter, the new Minister of Transport & Civil Aviation, to ask for financial help for the railways to enable increased wages to be granted, and the calling of a special delegate conference of the union to consider strike action. In September the N.U.R. and T.S.S.A. accepted, as a basis, a new offer by the Commission which left the actual rates to be determined by agreement, but the A.S.L.E.F. rejected it, and referred its claims to the Railway Staff National Council. Agreement was reached early in October on all except footplate grades, which were still being discussed in accordance with the statutory machinery.

Throughout the negotiations, a series of retreats from positions where it was felt that the industry could pay no more to reserve positions which enabled more to be offered seems to have been made. It is not clear how far in these and in previous discussions, account was taken by the Commission of prevailing wage rates in other industries as criteria of wages for comparable railway employments. During this period there was, as there is now, severe manpower shortage in grades where there is competition with industries offering higher pay and more attractive conditions. The realisation that the ability of the industry to pay higher wages was limited may have influenced the unions in accepting relatively small increases, which ranged from 6d. to 8s. 6d. a week for operating grades and £1 to £17 a year for clerical staff. Talks on efficiency again were promised and the prospects of railway peace seemed bright.

This situation has changed radically. The N.U.R. has met opposition from its members and has been obliged to ask the Commission to re-open talks and press for further increases. The Railway Staff National Tribunal has awarded rates of pay for footplate staff considerably higher than those offered by the Commission, such as a maximum increase of 14s. a week to drivers and of 7s. a week to firemen; details are given in the Staff & Labour columns of this issue. This no doubt has strengthened the determination of the N.U.R., and the settlement was, in any case, regarded only as an interim one by the T.S.S.A. The grounds on which the Tribunal decided to award rates to footplate staff so much in excess of those which it had considered reasonable last December are not apparent. It can hardly be because revenue has increased greatly, or because the talks on efficiency have had any very marked effect. Neither of these eventualities so far has come to pass.

All parties must face new decisions. The Commission cannot pay more in the present circumstances. Despite the rates and fares increases awarded during the year receipts in the first 44 weeks of 1954 have gone up by only £10,754,000. Further rate advances would turn traffic away. The unions have contended that the state of the industry is no excuse for the rates of pay of their members remaining below the national level for work of comparable responsibility—in other words, the market rate, an argument which is reinforced by the manpower situation on the railways. There has been much patient negotiation but it is hard to see what further action is possible. The idea of a subsidy has also been voiced. All forms of subsidy, in so far as they are a subsidy, hidden or otherwise, are objectionable for that reason. The union leaders must ensure that any agreement is accepted by their rank and file, and talks on efficiency must be translated forthwith into deeds.

Increasing Capacity in East Africa

THE difficulty of obtaining competent local staff was emphasised by Mr. A. F. Kirby, General Manager, East African Railways & Harbours, when he addressed the Associated Chambers of Commerce in Dar es Salaam recently. Many development schemes are held up, because of inadequate drawing office capacity, lack of skilled supervision, or inability to recruit skilled operatives. To some extent standards have had to be lowered to meet the situation. The Emergency in Kenya has lost to the railways many hundreds of skilled staff who, unfortunately, were active Mau Mau adherents. This is placing a great strain on the operating and maintenance departments, and the adverse effect is likely to continue for another year or so until it has been possible to train local recruits and to give them the experience necessary to become proficient.

The port improvements at Dar es Salaam, Tanga and Mombasa are progressing well. The extension of the port of Tanga to provide an additional 700 ft. of lighter quay and a large new transit shed, as well as improved marshalling yard and stacking areas, will be opened next month. The construction of the new deep-water berths at Mombasa and Dar es Salaam has fallen behind schedule because of difficulties encountered by the contractors. It had been planned originally to have the new Mombasa berths ready over a year ago, but the contractors cannot now promise the first of the two Mombasa quays, ready to bring ships alongside, until January; the second berth, complete with transit shed and facilities, will not be ready until late next year. The new large sheds that have been completed behind the existing berths at Mombasa and the new lighterage berth are now ready for use. Two more large sheds behind the existing berth have yet to be built, but already it should be possible to handle increasingly greater tonnages through the port. The new area at Changamwe is being developed and designs for two new deepwater berths on the mainland at Kipevu are in hand. The three berths at Dar es Salaam will probably not be ready for operation until the early part of 1956. Dar es Salaam should then have ample port capacity for some time ahead, though plans exist for further extensions.

The setback in these major port works, coupled with delays in the deliveries of rolling stock from overseas have completely upset the Administration's programme, said Mr. Kirby, and the consequent frustrations have been disheartening. Railway equipment is now beginning to come forward in fair quantities, so much so that a major problem at Mombasa is the high proportion of the tonnage of railway material which comes as sponsored cargo at the expense of general goods. As a complement to port improvement and additional rolling stock, station and train working facilities are being improved throughout the system. On the Tanga line the track is being ballasted and realigned and no great difficulty is contemplated in handling any foreseeable increases in traffic. By the recent rate reduction for the short-haul of sisal and by offering better transport facilities it is hoped to counter the severe road transport competition which will be the inevitable outcome of the road improvements in the area. On the Central line of Tanganyika there is just about enough present capacity, and many more locomotives and wagons are due to arrive within the next year or so to cope with foreseeable increases in traffic. Already new wagons and coaches are arriving at Dar es Salaam. Similarly, on the Kenya-Uganda Section, many new covered wagons, and some open wagons and locomotives, have been received. There are now enough covered wagons to meet requirements, but there is still a shortage of open wagons, although this deficiency is being overcome rapidly.

Mr. Kirby said that they were hoping to have some of the "59" class Beyer-Garratt locomotives in operation by February and March next, and he was banking on them to give the increased tonnage from Mombasa as from March next, though the full effects of the possible lifting of phasing in March were unlikely to be felt until some months after. Assuming that the equipment on which they were relying arrived, and if there were no unexpected

setbacks arising from the Emergency or port works at Mombasa, it was reasonable to assume that the tonnages going through Mombasa should be maintained henceforward at a reasonably high level and that from March of next year they should begin to see the end of phasing. The complete lifting of phasing would not come all at once.

Renaissance in Rhodesia

THE remarkable success of the Rhodesia Railways in handling efficiently the unprecedented traffics of the postwar years could be gauged by those privileged to hear Sir Arthur Griffin, who retired recently from the chairmanship of the Rhodesia Railways board and was previously General Manager of the Rhodesia Railways, when he spoke last week as the principal guest at the dinner given by the Transportation Club in London. A short account is given on another page.

Sir Arthur Griffin mentioned the phenomenal growth in mineral and other traffics with which the railway was faced as the result of the economic expansion of the Rhodesias. He went on to describe the many difficulties which have been and are being overcome in handling these traffics—not least in motive power, rolling stock, trained manpower, and housing shortages—and the methods used. The Rhodesia Railways, on which, until the end of the last war, relatively little capital had been invested in improvements, today are probably the best equipped system of their kind in the world; their equipment includes a considerable mileage of C.T.C. and some of the latest types of Beyer-Garratt locomotives. Their efficiency is apparent from their results—which include much reduced repair-days in shops for rolling stock. They still have their problems, however, among which Sir Arthur Griffin mentioned that of Government control, and the racial question.

What he did not mention was his own dominant part in inspiring the success achieved. Sir Arthur Griffin is, as Mr. K. W. C. Grand, Chairman of the Transportation Club, termed him in introducing him, a great proconsul of transport and Empire-builder—he was General Manager of the North Western Railway of India and Chief Commissioner of Railways and Member for War Transport of the Viceroy's Executive Council before he went to Rhodesia in 1947, bringing with him a ripe experience of the highly efficient methods of Indian railways. Where he is, things happen—as was pointed out at last week's dinner by Mr. Harold Wilmot, Chairman of Beyer, Peacock & Co. Ltd., who has wide experience of judging railways and the men who run them in many lands. Sir Arthur Griffin's many gifts include unusual powers of exposition: the talk he gave was a model of its kind in lucidity and interest which gripped a representative audience by no means confined to those concerned with railways.

British Transport Commission Traffic Receipts

BRITISH RAILWAYS passenger receipts for Period II, the four weeks ended November 7, showed an increase of £123,000 over the corresponding period of last year but were £768,000 less than in Period 10. The aggregate figure has been adjusted to some extent, making the aggregate increase for the 44 weeks, compared with last year, £1,095,000. This adjustment may mean that the fall in passenger traffic is not as steep as appeared from the figures of the last few periods.

Merchandise and livestock figures continued the decline, compared with 1953, noted in Period 10 and at £8,940,000 were £152,000 less than in the same period last year, although they showed an improvement of £133,000 over the Period 10 figures. Mineral traffic improved and at £3,839,000 was £364,000 more than in the previous period and £96,000 more than in the same period of 1953. Coal and coke traffic showed an increase of £188,000 over the previous period and of £804,000 over the same period of last year. Receipts from parcels were less satisfactory, falling by £72,000 from the Period 10 level but being £179,000

more than in the corresponding four weeks last year. This is a rather smaller margin than has been achieved in recent periods.

	Four weeks to November 7		Incr. or decr.	Aggregate for 44 weeks		Incr. or decr.
	1954	1953		1954	1953	
Passengers—						
British Railways ...	£000	£000	£000	£000	£000	£000
London Transport—	7,880	7,757	+ 123	100,459	99,364	+ 1,095
Railways ...	1,644	1,485	+ 159	16,024	15,314	+ 710
Road Services ...	3,617	3,918	- 301	42,872	42,178	+ 694
Provincial & Scottish buses ...	3,667	3,625	+ 42	43,789	43,022	+ 767
Ships ...	246	239	+ 7	5,265	5,058	+ 207
Total Passengers ...	17,054	17,024	+ 30	208,409	204,936	+ 3,473
Freight, Parcels & Mails—						
British Railways—						
Merchandise & livestock ...	8,940	9,092	- 152	93,405	91,184	+ 2,221
Minerals ...	3,839	3,743	+ 96	38,451	37,883	+ 568
Coal & coke ...	9,769	8,965	+ 804	97,502	91,202	+ 6,300
Parcels, etc., by passenger train	3,226	3,047	+ 179	34,276	32,454	+ 1,822
Total British Railways	25,774	24,847	+ 927	263,634	252,723	+ 10,911
British Railways C. & D. ...	952	935	+ 17	10,269	9,858	+ 411
Others* ...	5,958	7,015	- 1,057	67,295	71,336	- 4,041
Total Freight, Parcels, & Mails ...	32,684	32,797	- 113	341,198	333,917	+ 7,281
Total ...	49,738	49,821	- 83	549,607	538,853	+ 10,754

* Inland waterways, freight haulage, and ships.

London Transport railways receipts improved by £149,000 on the Period 10 figures and were £159,000 more than in the corresponding period last year. This improvement was offset by the £441,000 drop in receipts from road services, which showed a decrease of £301,000 compared with last year. The London bus strike was no doubt responsible for much of this decrease.

Provincial and Scottish buses showed a seasonal fall in total receipts to £3,667,000. This was an increase of £42,000 on the similar period last year and is in contrast to the decreases in the last two periods. Passenger shipping receipts continued the seasonal fall but showed an improvement of £7,000 over last year. The aggregate increase from this source for the year is now £207,000. Inland waterways, freight haulage, and shipping receipts were £1,057,000 less than in the corresponding period of last year and the aggregate decrease for the year has now reached the large total of £4,041,000.

The total receipts of the Commission for the period were £49,738,000. This is £83,000 less than in the corresponding period last year. Paradoxically, however, the adjustment to passenger receipts already mentioned has resulted in an improvement in the aggregate increase over 1953, which is now £10,754,000.

BRITISH TRANSPORT COMMISSION TRAFFIC RECEIPTS PERCENTAGE VARIATION 1954 COMPARED WITH 1953

	Four weeks to November 7		44 weeks to November 7		
	1954	1953	1954	1953	
British Railways—					
Passengers	+ 1.5
Parcels	+ 5.8
Merchandise & livestock	+ 1.6
Minerals	+ 2.5
Coal & Coke	+ 8.9
Total	+ 3.2
C. & D. services	+ 1.8
Ships (passengers)	+ 2.9
British Road Services, Inland Waterways, and Ships (cargo)	- 17.7
Road Passenger Transport, Provincial & Scottish	+ 1.1
London Transport—					
Railways	+ 10.7
Road Services	- 7.6
Total	- 4.4
Aggregate	- 0.1

Maintenance of d.c. Traction Motors

DEVELOPMENT of the d.c. traction motor has moved in the direction of smaller dimensions, higher rotational speed and reduced weight for a given horsepower. Weight reduction has been assisted by self-ventilation, making it unnecessary to use as large a frame size as once was required to dissipate heat. Commutating poles have improved its performance, but electrically the machine shows no fundamental departure from its predecessors. On the mechanical side there have been changes welcome to those responsible for its maintenance, although some of the old problems remain, and certain innovations are still some way from general acceptance. It is likely that widening circles of railway engineers will find themselves concerned with traction motors in the not distant future, and it was therefore a timely and appreciated gesture by the Institution of Electrical Engineers to invite members of the Institution of Locomotive Engineers to hear the paper presented on November 11 by Mr. J. G. Bruce, Assistant Mechanical Engineer (Works), London Transport Executive, on "The Overhaul and Maintenance of Direct-Current Traction Motors."

Mr. Bruce's paper presented a detailed review of traction motor maintenance procedure followed at the Acton Works of London Transport, and during the meeting a warmly endorsed tribute was paid to the Executive's readiness to share its experience in this respect with the main-line railways. The author recalled the initial experiments in 1928 with ball and roller bearings for armatures, and the decision to adopt roller bearings for all new machines from 1932 onwards, while gradually converting all the motors already in service on multiple-unit passenger rolling stock. After an initial charge of grease when the motor is assembled, present practice is to lubricate the bearings at a period of twelve months by inserting 1½ oz. of grease from a special pump to ensure that a bearing does not run dry before the general overhaul, which is carried out after 200,000 car-miles. At this stage the motor is stripped down, examined, repaired when necessary, and reassembled. The simplicity of lubrication compared with the weekly topping up required by the wool packing used for white-metal bearings was emphasised. An additional advantage would seem to be relief from the necessity for frequent checking to ensure that wear of bearings has not disturbed the air gap between the armature and poles, as was liable to occur with the white-metal type and lead to armature failures.

Roller suspension bearings were introduced by London Transport in 1936 and approximately half the motors on the Underground system are now equipped in this way. The advantages of these bearings in accurate maintenance of gear centres are such that their wider use might be considered. London Transport has a fourth rail return throughout its system so that there is no passage of current through the bearings. Elsewhere special diverting brush-gear is used on the axle, but further data on the effects observed when the return is through the bearings and running rails would be useful.

The author said that armatures are responsible for the greatest number of failures and suggested that relative movement between core plates and armature bars might be the cause in many cases. It was thought that silicone rubber insulation, because of its resilience, offered prospects of reducing these occurrences. There was further reference to silicones in the discussion on the paper, when it was suggested that they would be very valuable in avoiding carbonisation, which is at the root of many breakdowns. It appears, however, that silicones might involve difficulty in the return to totally enclosed motors which would be welcomed by Mr. Bruce, because of a possible tendency of their constituent materials to cause increased brush wear in an enclosed machine.

A brief reference was made by Mr. Bruce to cardan shaft transmission as used in the Toronto subway cars, and this subject was returned to in the discussion, when it was observed that although this system removes the weight of the motor from the axle it substitutes a fairly heavy gear unit. It is true that if reduction of unsprung weight on

the axle is the only advantage looked for, this argument is valid, but some engineers may attach importance to protecting motors from mechanical shocks, and to the high gear ratios which can be used, so that the present trend towards small and light machines with high rotational speeds can be pursued with the maximum effect. Quite apart from suspension, methods of transmission deserve careful study so that the pinion and gearwheel system is not accepted as the ultimate simply as a result of lack of experiment.

Other points of special interest to manufacturers were Mr. Bruce's reference to the present multiplicity of sizes and types of roller bearings, and the hope he expressed when presenting his paper that in future designs of traction motors armature bands might be dispensed with. His description of procedure in the motor shop at Acton Works, where 1,800 traction motors of a wide range of types are dealt with each year, can have left no doubt among the designers present that the products of their drawing boards receive expert and meticulous attention in service.

LETTERS TO THE EDITOR

(The Editor is not responsible for opinions of correspondents)

Isle of Wight Railways

November 19

SIR.—Any further closing of the railways there will finish the Isle of Wight as a family holiday resort, except for the few who can book their dates with certainty 12 months in advance and so arrange to get their cars over the ferry, and those prepared to be dumped at Ryde or Cowes, there to remain, immobile except for their own two feet, until they return to the mainland.

At the end of August, past the peak of the season, my family and I could only once get out of Shanklin by bus before 7 p.m., and then only to Bembridge. Our other daytime excursions were confined to places still served by rail, and every train by which we travelled was almost full. We particularly wanted to visit Freshwater and Alum Bay, and at the first attempt waited 2 hr. without a single passenger in the queue getting on any bus going that way. Two further attempts later on during our fortnight's stay were equally unsuccessful.

Yours faithfully,
I. S. FORBES

31, Tyrells Close, Chelmsford

Railway Freight Movement

November 15

SIR.—I read with greatest interest Mr. A. R. G. Saunders' articles in your August 20 and 27 and September 3 issues, and was rather surprised that they evoked so little comment.

I do not propose to comment on them now beyond expressing the opinion that Mr. Saunders is working on the right lines in challenging the "Gospel according to Statistics"; and in his letter published in your issue of November 12 he very properly questions the practical worth, in terms of cost of compilation, of the *Transport Statistics* produced and published by the British Transport Commission.

It may be of interest to recall their history. So far from having been designed to facilitate efficient railway management, their original intent was to provide the Government of the day with a means of keeping the railways in check, lest in their monopolistic rapacity they exploited a long-suffering public to their own—and excessive—profit. To this end a departmental committee of the Board of Trade was set up, half-a-century ago, to devise such a means of control; and the result of their labours was the establishment of a schedule of the information they required the railways to provide, and the form in which they required it. This was given the force of law and was enjoined upon the railways by the Railway Companies (Accounts & Returns) Act, 1911, subsequently reinforced and amplified by the Railways Act of 1921.

Though there is no relationship between the circumstances then surrounding public transport, and modern working conditions, the statistics, and the form in which they are presented, have been retained. The result is the periodical analyses of working results, with their dreary processions of crude averages; and the orthodox inferences

to be drawn from them; which have now acquired an almost Scriptural authority, to question which is just plain heresy.

By a curious coincidence, the same issue of *The Railway Gazette* included a review of 1953 railway freight operation. The report on which this is based has only recently appeared, some nine months after the end of the year to which it refers; and is, as usual, a somewhat incoherent record of a period that has already passed into history.

Heaven forbid that I should suggest adding yet another "average" to the tedious list, but if the B.T.C. statisticians would compute the total cost of preparing the returns, collecting, dissecting, summarising, analysing, and printing them and then divide this sum by the number of averages published, we should arrive at a new figure—"Average Cost per Average Calculated." The result might administer a shock which would give them furiously to think.

Yours faithfully,
X. G. M.

London

Communication Between Driver and Guard

October 10

SIR.—I refer to Mr. Courtenay Barry's letter in your November 5 issue. Radio telephone contacts between train crews and control would be of little use so far as this country is concerned, and would only tend to further complicate the duties of men already protected by rules which, if carried out correctly, provide their own safeguard.

Experience in this country with "austerity" 0-6-0 tank engines provided with wireless contact to a traffic office, proved useful for altering written instructions and saved a few engine miles, but it also interfered with safe working, as drivers were observed to take their eyes off the line ahead, and their minds concentrated on the gist of the message being received; this was still the case when the equipment was moved to the fireman's side.

Other engine crews kept the sets switched to transmit for long periods, and an occasional serenade was broadcast for the benefit of anyone listening; this was overcome by fitting a switch that returned to the off position as soon as released. The sets provided a working range of up to six miles; but fading occurred when passing through cuttings, or by large clumps of trees, and with main lines interference by tunnels and trains passing with similar equipment would arise.

Telephonic communication between driver and guard may well have proved useful in past emergencies (had it been provided), but who is to say that even then the human element may not have had a further hand in any particular incident, and may have even led to other incidents which would not have arisen but for misuse of this aid?

Wireless contact between driver/signalmen/guard control certainly presents problems which would be hard to overcome when the density of traffic on any particular section of line is considered, and may prove impracticable on electrified routes.

Yours faithfully,
THOMAS WALKER
2, Newdale Avenue, Cudworth

THE SCRAP HEAP

Price of Escape

West German railway officials have stated that people who escape from Communist Hungary by riding under trains will have to pay a third class fare for the trip.—From the "News Chronicle."

Working Cost—4s. a Train-Mile

An extract from a London & Greenwich Railway account book of 1842, which has been sent us by a correspondent, gives the following analysis of passenger train operating costs:

	s. d.
Locomotive power, viz., wages 2d., fuel 4d., oil, hemp, etc., 1d., ordinary repairs, 7d., water and fuel stations 3d., reserve fund	0 4
1d.: total	0 4
Carriages	0 8
Maintenance of line	0 2
Police	0 2
Conducting traffic at stations	0 5
Local rates and taxes	0 3
Government duty on passengers	0 5
Miscellaneous expenses	0 2
Management	0 2
Total cost of train per mile	4 0

The police charges were for public safety on the line before the days of proper fencing, level crossings, and signals. These costs are believed to be about the average for that period.

British Railways Liveries

Before 1923 the white-and-plum of the L.N.W.R., the beautiful Midland red lined out in gold, and the smart teak with white roofs of several companies, their beautifully kept engines in various colours, often polished until you could see your reflection in them, all added to the variety and spice of travel.

There is nothing impracticable and no difficulties would be experienced in gradually returning to a pleasantly varied and less monotonous colour scheme. Of what matter if the coaches do get mixed up a little? . . .

I trust that the Regional boards will use some of the freedom at their disposal to reinstate a few of the pleasant colour schemes and coats of arms of an era of railway progressiveness which would satisfy a public demand for change and variety, thus stimulating interest in railway travel.—From a letter to "The Manchester Guardian."

Versatility

France would not be France if the people who had built the cathedrals were not also capable, on occasion, of building the fastest locomotive in the world.—Monsieur Pierre Mendès-France, quoted in "The Observer."

The Bowler's Return

The British Railways Magazine does not *prima facie* appear the appropriate field for battles as to male fashions; but in the August number the bowler hat has found a doughty champion in Mr. Chambers, who is assistant yard master in the big depot at Sheffield. It all began with the Curator of Railway Relics, British Transport Commission, Mr. J. H. Scholes, declaring that no historical collection was complete without a bowler. This roused Mr. Chambers, who regularly wears one at his work. That some of his fellows in supervisory grades have abandoned this good old hat of authority he regards as a tragedy. The bowler he holds to be the proper complement of the blue serge suit regularly issued to the officers of his grade. A peak cap with gold braid is likewise issued, but this he eschews, since the wearer is always set upon by unfortunate passengers asking questions. Gold braid is, in itself, alluring to the traveller's eye, but Mr. Chambers' argument seems eminently sensible. Whether or not the bowler has become

a museum piece in railway circles, it has of late become perceptibly more popular with wearers in general. The Hatters Information Centre says so and in London, at any rate, it is clear to any observer. . . . Beautiful the bowler is not, but it has an enduring quality and even a certain dignity of ugliness.—From "Country Life."

Large Towns Created by Railways

Professor E. W. Gilbert in his recent inaugural address as Professor of Geography in the University of Oxford, said that more time and attention should be devoted to the historical geography of 19th century England. There was no atlas of the growth of large towns and no substantial account of the railways as a force in altering the face of the country. Of urban geography he said it was strange that, although England was the most urbanised country in the world, so little was known about the geography of its towns compared with that of some Continental and American cities. Great towns were largely the result of transport; the railway was primarily responsible for the development of the mammoth cities of today. Yet long before railways were invented Hobbes asserted in his "Leviathan" that one "infirmity of a Commonwealth is the immoderate greatness of a Town."

Broadly Speaking

When homeward bound not long ago,
Straphung and swinging to and fro,
In my ribs I felt a knuckle
And seemed to hear a ghostly chuckle.

There beside me with wide grin
Swayed a man who didn't fit in,
With stove pipe hat and trousers tight,
He seemed a most outdated sight.

"Would you like a seat?" he asked of me;
And from his talk I could plainly see
That if he said so, it could be mine
For he appeared to own the line.

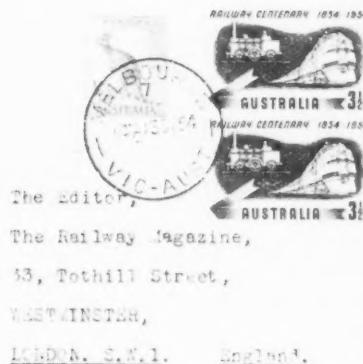
So I decided with nonchalant air
To kid him off that I didn't care,
But the gleam in his eye was so unkind
That softly I said that I wouldn't mind.

"Of course you would, and so would I"
Said he with a snarl and a little sigh
"And you could have had it if they'd stuck to me"
And I wondered awhile whom this man might be.

So I looked again as we bent and swayed;
As he offered his card he seemed to fade;
But I grabbed the card and read it well—
Does anyone know a Mr. Brunel?

A. C. P.

Commemorating the Australian Railway Centenary



Cover of letter from the Chairman of the Victorian Railways Commissioners, posted in Melbourne on September 13 (see our issues of September 17 and October 8)

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

RHODESIA

South-East Connection

Some 65 miles of track have been laid and ballasted on the new line running south-eastwards from Bannockburn. The constructional headquarters has been moved from Bannockburn to Rutenga, and track is being pre-assembled at a depot at Ngesi. The sites have been decided on for the stations at Rutenga, Sahaharu, Ngesi, and Vukwe, and the buildings will be begun soon.

Increasing Wagon Capacity

To alleviate the coal shortage in the Rhodesias and Nyasaland, the Rhodesia Railways are increasing the capacity of 200 high-side bogie wagons. Because of weight restrictions only 6 in. can be added to the wagon sides, involving an increase of 143½ cu. ft., or about 5,000 lb. This will raise the axle loading to 15 tons, the limit for operation on 60 lb. rail.

EAST AFRICA

Results for September

The approximate total revenue for September was £1,228,210 compared with £1,291,220 for August and £1,036,821 for September, 1953. The total for the first nine months of the year was £11,228,445.

All demands for rail haulage to the coast were met, but the total tonnage forwarded to Kilindini nevertheless was only 47,634 tons compared with the record August figure of 66,431 tons. The total of 505,729 tons for the nine months of 1954, however, shows a considerable increase over the corresponding tonnage of 432,167 for 1953, indicating that the major crops have moved earlier this year and that there is unlikely to be any further appreciable increase until the new season's crops are harvested. Haulage up country totalled 109,564 tons, a slight decrease on the previous month caused by a reduced amount of imports being landed.

On the Central Line, haulage to Dar es Salaam continued to improve, and the 13,737 tons recorded for September was the highest this year and was almost identical with the same month in 1953. The effect of greatly reduced exports at the beginning of the year is gradually being overcome and the total tonnage to the end of September was 92,069 tons, compared with 114,781 tons for the corresponding period of last year. It is doubtful, however, if the gap will be closed completely by the end of the year.

Tanga Line traffic to the port continued to show a steady improvement compared with the previous year's figure, although recent monthly totals have been lower than in the early part

of the year. Imports by rail up country from the port, totalled only 43,081 tons for the first nine months of this year, against 48,270 tons for January to September, 1953.

NEW ZEALAND

New Station at Christchurch

Plans and specifications have been approved for a new station at Christchurch, and the Railways Department will call for tenders for the construction of the building. The Railways Department will also co-operate with the Christchurch City Council in the abolition of the Colombo Street level crossing, and is prepared to contribute to the cost of this work.

WESTERN AUSTRALIA

Conversion of Sleeping Cars

Four of the four-berth, first class sleeping cars have been converted to two-berth compartment cars. The conversion involved the removal of all internal fittings, and rebuilding the interior. The new compartments are complete with wide wardrobes, wash-basins, reading lights, and sleeping berths which can be made up before train departure and operated by the passenger. There are 16 instead of 20 berths, and the communal washroom, which also contained two berths, has been abolished. There are shower baths in each car and hot and cold water in each compartment.

The converted cars, which will be used largely on the overnight journey between Perth and Kalgoorlie, have evoked favourable comment. All the work of conversion was carried out in the Department's workshops at Midland Junction.

CANADA

C.N.R. Results

Strengthening earlier reports that the Canadian National Railways will show a substantial deficit this year, the company's income and expense statement reveals a decrease of \$6,468,000 in operating revenues for September and of \$52,230,000 for the first nine months of 1954. Major economies have been made in the cost of operating the trains and in the cost of maintaining equipment, but despite the decline in revenues the company has decided that the extensive trackwork programme planned for the year shall be carried out in the interests of increased efficiency of train operation and of passenger safety.

As a result, although operating expenses for the first nine months of 1954 were reduced by \$35,535,000 this reduction was not sufficient to overcome the severe decline in revenue; net operat-

ing revenue to the end of September therefore showed a decrease of \$16,695,000. Gross operating revenues for the entire system in September amounted to \$53,329,000 compared with \$59,797,000 in the corresponding period last year. The operating expenses totalled \$52,250,000. In the same month a year ago they were \$55,892,000. Operating revenues for the first nine months of 1954 were \$477,302,000 compared with \$529,532,000 for the similar period last year. Operating expenses were \$470,006,000. In the first nine months of 1953 they were \$505,541,000.

Algoma Central Traffic

Like those of the two major Canadian railways, the revenues of the Algoma Central & Hudson Bay Railway are substantially lower this year. There has been a reduction in traffic handled by the railway, both on its 340 miles of line between Sault Ste. Marie and Hearst, and on its fleet of six Great Lakes cargo vessels. The company carries iron ore to the U.S. from the Algoma district and its revenue from this traffic has suffered from the decreased steel output. Movement of pulpwood in the area has also decreased, with consequent loss, and the business handled by the company's Great Lakes cargo fleet is only about 60 per cent that of last year, because of slower grain movements.

UNITED STATES

Cheapening Dome Car Construction

To reduce the cost of investment in the dome observation cars, the Southern Pacific Railroad has tried the experiment, in its own shops at Sacramento, of converting an older parlour-observation car into a dome car without the depressed lower floor between the bogies that requires a special type of underframe.

Over three-quarters of the length of the car a new roof, glazed on both sides, has been built at a level 20 in. above the ordinary roof. Under this, for roughly half the length of the car, a raised floor has been built at ordinary dome level; the space between this and the existing floor is given over to baggage storage and air-conditioning equipment, and above it are the dome seats, along both sides, with a depressed centre aisle which is reached by stairways at both ends.

The stairway in the centre of the car leads down into a lounge, which is of an unusually airy description, because of its high glazed roof. Beyond this the further end of the car, under a roof of normal height, is given over to a service bar and valet quarters. The car is 81 ft. long, and seats 67 passengers.

Raising Chicago C.N.W. Terminal Roof

To permit the entry into the Chicago & North Western Railway terminus in Chicago of double-deck suburban

coaches, and also of the dome cars to be introduced on the through Chicago-Pacific Coast trains, it was decided that the station roof must be raised by 12 in. throughout to give clearance. It covers 265,800 sq. ft. and weighs approximately 10,000 tons; it was necessary to carry out the work without interference with the 178 suburban and 58 main-line trains using the 16 station tracks daily.

The roof is carried by arched girders spanning each of the eight pairs of tracks, and these are supported on lines of columns along the centre of each platform, from 30 to 36 columns in each row, 270 of them in all. The method was to arc-weld steel plates to the latticed side of each column and to remove the lattice bars below the plates; then to cut the column through horizontally and to weld U-shaped plates to the lower portion of the column to act as a sleeve; and finally, after bolting jacking frames in position, to jack the upper part of the column upwards with two 50-ton hydraulic jacks.

Each column thus moved in telescope fashion in the sleeve, and at the end of the movement the lower end of the column above the cut was welded to the upper portion of the sleeve and the operation was complete. The jacking work was begun at the north end of the station, and each transverse line of columns was jacked simultaneously.

NETHERLANDS

Amsterdam Central Station

Amsterdam Central Station is being modernised. The central hall is insufficiently large for the easy circulation of passengers. During the next two years the hall will undergo complete

transformation. The booking office in the centre of the hall will be replaced by a large entrance to the underground passage connecting the platforms. To the right and left of this entrance new booking windows will be constructed against the façade between the two entrance doors to the passenger vestibule. There will be a special office for foreign passengers where they will be able to take tickets for other countries, reserve seats in international trains, change money and obtain information.

New Stations at Rotterdam

In Rotterdam, where station buildings and installations were severely damaged during the war, three new stations will be built during the next few years. The main station, previously the Delftse Poort and now called the Central Station, will have six platforms and an entrance building at each end of the underground passage joining the six platforms. At the edge of a large station square the main building, 13.5 m. high, will be constructed. The total length of the façade will be 120 m.

In the plan of the façade, the architect, Ir. S. van Ravensteyn, has stressed the important function of the central hall, the wall of which will consist of a great glass panel, flanked by the two wings of the building which will contain the services. At the extreme left and right special passages for vehicles, covered and protected, will lead to the lateral squares.

Rotterdam-Zuid Station will be much improved. Entrance buildings will be constructed on both sides of the line. Finally, the Hofplein Station will be

extensively modernised; the most important improvement will be the large entrance hall which will be built in front of the viaduct, thus hiding the raised platform from view.

FRANCE

Container Tariff

The charges for the supply and transport of containers have been amended. The principal effect is that the container differential applied to traffic in railway-owned containers is now a flat rate instead of a percentage of the carriage charges, whilst the percentage rebate from the carriage charges for goods in privately-owned small containers has been cancelled. From this it is to be assumed that the S.N.C.F. is now anxious to encourage the use of railway-owned rather than privately-owned containers.

Other provisions include a reduction in the charge for the empty movement of tank containers, confirmation of the 200 kg. (441 lb.) minimum load for charging purposes in respect of small containers, and increased advantages for the forwarding of groupage traffic.

IRELAND

C.I.E. Tours in 1955

C.I.E. plans to operate 200 all-in motor coach conducted tours next year. More than 55,000 booklets on the tours have been distributed to agents in Europe and America. Last year the company carried the record number of 5,000 tourists on its coach tours. A second radio train will run next summer.

Publications Received

British Railway History. An Outline from the Accession of William IV to the Nationalisation of Railways. 1830-1876. By C. Hamilton Ellis. London: George Allen & Unwin Limited, Ruskin House, 40, Museum Street, W.C.1. 9½ in. x 6 in. x 1½ in. 443 pp. Illustrated. Price 30s.—Many detailed histories of individual lines and systems, the pre-nationalised components of British Railways, have appeared from time to time, but this is believed to be the first comprehensive history of them collectively. Although it claims to deal with the subject in outline only, this book contains ample detail, human character, and humour to make interesting reading of what otherwise might easily be a catalogue or encyclopedia. This volume omits the Stockton & Darlington and begins with the Liverpool & Manchester, with Stephenson in the ascendant; the initiation of the first three trunk lines, the Grand Junction (Birmingham to Liverpool and Manchester), one of Joseph Locke's major works; Robert Stephenson's London & Birmingham; and Brunel's London-Bristol. The corresponding gauge and

mechanical developments down to 1845 are also fully discussed. The second part covers the Railway Mania with its inter-company wars, Hudson's activities, and railway and mechanical developments to 1861. More orthodox expansion of the railway network and mechanical improvements to 1876 are chronicled in Part 3. One of the most interesting features is the eight-page collection of notes on the 25 plates.

Victorian Railways News Letter: Centenary Number. The September issue of the *Victorian Railways News Letter*, the official organ of the Victorian Railways, is devoted to the centenary of railways in Victoria (and Australia) which was celebrated on September 12. Some excellent old photographs of past Victorian railway scenes and locomotives supplement a most readable text.

Hollow and Solid Forgings.—An illustrated brochure issued by the English Steel Corporation Limited, Sheffield, depicts some of the operations involved in the making of steel ingots ranging from 35 to 275 tons; the heavy ingots produce hollow and solid forgings weighing up to 175 tons. Colour plates

and half-tones are included which show the production of ingots; one-piece marine crankshafts; locomotive axles and connecting rods; hollow-forged boiler drums and other high-pressure vessels; mill rails and so on; with machine tools, and the use of flaw detection equipment. Copies are forwarded free of charge on application to the Publicity Department, English Steel Corporation Limited, Sheffield, 9.

S.A. Energie.—This company, with large works at Marcinelle, near Charleroi in Belgium, illustrates its wide range of steelwork, machine tools, cranes and conveyor plants on the outside of an eight-page folder; and the inside concentrates on electric trains, bogies, and diesel locomotives.

Winter Sports 1954-55.—This booklet now made available by Thos. Cook & Son, Ltd. and Dean & Dawson Limited, gives details of winter sports holidays in Switzerland, Austria, France, Germany, Italy, Jugoslavia, Scandinavia, and Spain. It is illustrated by photographs and line drawings and contains a map of winter sports centres in Southern Europe.

Passenger Service between India and Western Pakistan

Re-opening, after seven years, of the Amritsar-Lahore line

(By a correspondent)

THE passenger train service between India and Western Pakistan was resumed on October 28 after an interval of seven years, as recorded in *The Railway Gazette* of November 5. The first passenger train left Amritsar, in India, at 10 a.m., conveying 223 passengers, and arrived at Lahore, in Pakistan, at 2.30 p.m.; the first eastbound train left Lahore at 1.45 p.m. and reached Amritsar at 6.15 p.m.

The distance between Lahore and Amritsar is 32 miles. Before Partition this was covered in less than an hour by a number of shuttle services, both steam and diesel, and by through long-distance trains such as the "Frontier Mail," which ran between Bombay and Peshawar, on the North West frontier of what was at that time the Indian Empire.

The two international passenger trains which ran on October 28, therefore, made history, and the occasion was marked by the presence of diplomatic representatives of both the countries and senior officers of the Northern Railway of India and of the North Western Railway of Pakistan. Mr. Ghaznafar Ali Khan, Pakistan High Commissioner in India, made the journey in the westbound train from Amritsar to Lahore, where the train was received by Mr. S. A. Suhrawardy, General Manager, and Mr. I. A. Abbasi, Chief Operating Superintendent,

North Western Railway. Mr. M. V. Rau, Indian Deputy High Commissioner in Pakistan, met the train at Atari, the last station on the rail link within Indian territory, and Mr. D. C. Baijal, Divisional Superintendent, Ferozepore, Northern Railway of India, travelled on it from Amritsar to Lahore.

As the inaugural westbound train left Amritsar, the public present on the platform shouted "Long live India and Pakistan." Mr. Ali Khan shook hands with the driver and the guard, saying that they were providing a useful link which might pave the way for the solution of other problems between the two countries.

Frontier Formalities

The inaugural train consisted of five second and third class bogie coaches with a carrying capacity of 300. The first halt was at 10.40 a.m. at Atari, for Customs formalities. Here the train was received by a large number of railway porters, in bright red, new uniforms, who took passengers' baggage first to the checking enclosure, where police checked passports, and then to the Customs area, where the formalities were completed in 1 hr. 20 min.

The next stop of the westbound train was at Jallo, in Pakistan territory, seven miles from Atari, where the formalities were repeated by the Pakistan police and Customs authorities.

Most passengers in the Amritsar-Lahore train were Muslims. They were either Pakistani Nationals or Indian Muslims visiting their relations in Pakistan; they included many women and children. Many of the passengers considered it a great privilege to travel by the first train.

This traffic is not entirely new, as a considerable number of nationals of both countries has been travelling between Lahore and Amritsar by bus.

On the return journey, the N.W.R. engine with five bogie coaches was driven into India by an Indian crew. The train, which carried over 200 passengers, crossed the westbound train at Jallo, where it halted for the first (Pakistani) police and customs check.

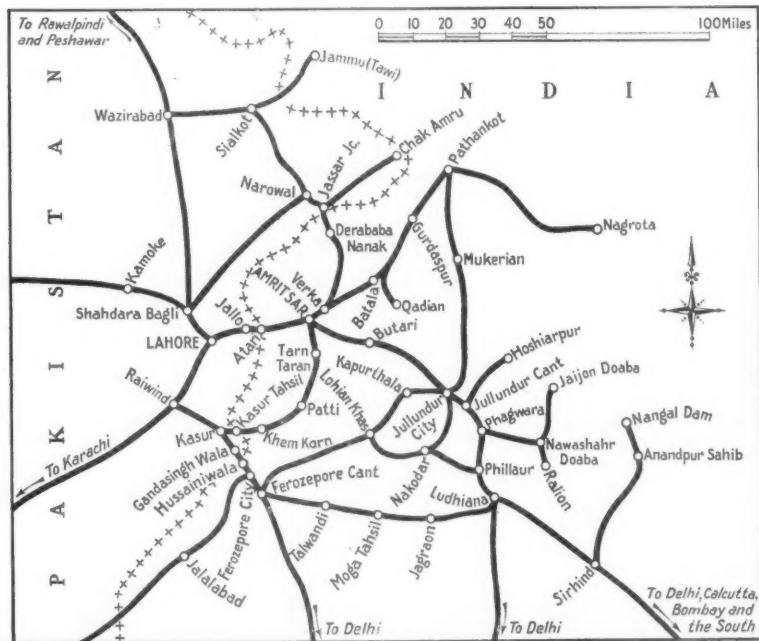
The lighter side of the occasion was the discovery of some prohibited silk cloth in a pillowcase among the belongings of a woman passenger, who, on the suggestion of Mr. Ali Khan, was allowed to retain it as a gesture of goodwill.

The service also ran to schedule the following day, but with a larger number of passengers.

Preliminary Negotiations

Much preparation and preliminary discussion between the Indian and Pakistani railway officers and officials of the other services concerned were necessary before the train service could be resumed.

In May, 1954, Mr. M. K. Kaul, who was then Senior Deputy General Manager, Northern Railway, went over to Lahore for talks with the North Western Railway officers and a few days before the inauguration of the passenger train service the Chief Operating Superintendents of both the Northern and the North Western Railways, accompanied by other officers, discussed details at Atari.



Railways in the Amritsar-Lahore area showing their relation to the Indo-Pakistan frontier, and the frontier stations of Atari and Jallo

PHILIPS ELECTRICAL LIMITED NEW STUD WELDING PROCESS.—Timing is carried out by means of a cartridge placed at the end of the stud in a new stud welding process developed by Philips Electrical Limited. In conventional welding practice, the arc between stud and weld-piece is struck and timed by electronic and/or mechanical apparatus, and the studs have to be specially shaped and prepared. In the new Philips process this additional equipment is not necessary, as the ignition and arc-time control is regulated by the cartridge itself. It is not necessary to use special studs, and normal studs treated and untreated, including black studs, may be employed. The stud welding gun used is simple, containing only a spring for pressing the stud holder against the weld-piece. The apparatus is operable on a.c. mains, and can be used with standard welding transformers.

Progress of Shenfield to Southend and Chelmsford Electrification

Display at stations of diagrams for information of travelling public

SINCE amended train services between Shenfield and Southend Victoria were announced by British Railways, Eastern Region, last September, good progress has been made with engineering work preliminary to electrification. Much of it is being done at night and at weekends.

To give passengers a better idea of what is happening, diagrams are to be displayed at each of eight stations from Shenfield to Southend Victoria inclusive. These will be kept up to date and as various tasks are undertaken and completed endorsements will be made.

Civil Engineering Works Expedited

Twenty-five major tasks have been scheduled under the programme for track stabilisation. This represents work which normally would be spread over five years; it is hoped to complete all of it before next summer.

Between October 3 and 31, 70 ballast trains were run. Other figures, all in the same period are:—

3,000 cu. yd. of clay excavated, loaded and removed.
2,100 sq. yd. of waterproofing laid.
1,300 cu. yd. of sand offloaded and spread.

1,000 tons of track ballast offloaded and spread.

700 tons of lump slag offloaded.

In addition, half-a-mile of new drainage was laid.

Drainage

There are particular problems of drainage on the line between Shenfield and Southend Victoria caused by the clay soil, and certain of the earthworks, built in the 1880s, have deteriorated as a result. The present work is aimed at bringing the whole of the line up to a high standard and its completion, before electrification, will avoid any disturbance of the electric services when they commence running.

In the normal way, where drainage is satisfactory, difficulties arising from the presence of clay subsoil can be met by increasing the amount of top ballast, but where drainage is poor and water in the clay subsoil cannot get away, the result is the formation of an unstable mass which cannot be dealt with by the usual methods. In these special cases, it is necessary to resort to blanketing.

New drainage is also needed at many of these sites and complete occupation of the track is required. Blanketing has

been found necessary at Billericay, Wickford, Rayleigh, and Hockley, and some of the work is already done.

At Hockley the up platform has to be lengthened and at Rayleigh and Hockley the platforms will be raised. These tasks will be carried out during periods of track occupation necessary for other work. Various drainage and bank strengthening works, not involving interruption to train services, are, however, in operation at many sites, with track renewals.

Overhead Electrification Equipment

Before the track stabilisation work has been completed, the erection of the overhead electrification equipment is likely to start early next year. The contract for this has already been let, as recorded in the Contracts & Tenders columns of our November 12 issue.

Should the diagrams now being placed at stations to show progress of the civil engineering work prove popular, an effort will be made to retain them to record progress of the actual work of electrification, including erection of the overhead equipment, laying of cables, and the construction of the substations.

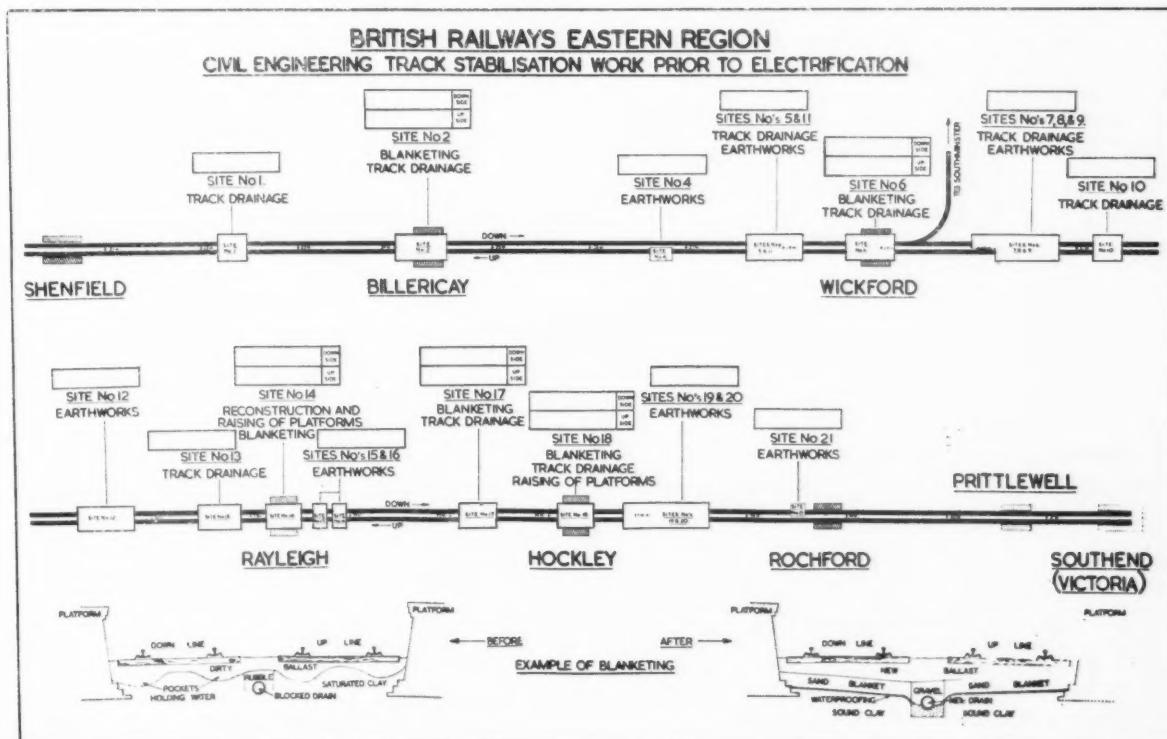


Diagram showing initiation of and progress on new works in connection with Shenfield-Southend Victoria electrification, to be exhibited at the eight stations on the line concerned

Locomotives for Valenciennes-Thionville Electrification

Layout of electrical equipment in four designs for single-phase 50-cycle working

THE new locomotives for the Valenciennes-Thionville electrification of the French National Railways have adapted the central cab arrangement, borrowed from an earlier period of design, to house apparatus representing the latest methods of

Two d.c. generators are driven by the Arno single-phase/three-phase converter which supplies the squirrel-cage auxiliary motors. One of these d.c. machines is used to motor a main generator for starting purposes. On approaching synchronous speed the

(in the drawing) is the synchronous phase-converter, coupled to the d.c. generator from which a variable-voltage supply is taken to drive the motor of the frequency-changer group at the opposite end of the locomotive. By altering the speed at which the frequency changer rotor is driven by the d.c. motor, a continuously-variable frequency can be supplied to the six squirrel-cage traction motors. Starting of the synchronous machine is effected by motorizing the d.c. generator in a manner similar to that described for the single-phase/d.c. locomotive.

The single-phase/three-phase type weighs 120 tons, including 6.7 tons for the transformer, 14.6 tons for the phase-converter, and 12.7 tons for the frequency-converter. Both Co-Co locomotives have a bogie pivoting system similar to that used in the S.N.C.F. Alsthom 1,500 V d.c. locomotives of the same wheel arrangement, which has valuable effects in minimising weight transfer. The motors are nose-suspended.

Figs. 3 and 4 show the layout of equipment in the two Bo-Bo designs, the dimensions of which are as follow:—

Length overall	52 ft. 6 in.
Height to cab roof	12 ft. 1½ in.
Height to top of equipment compartments	
Width overall	9 ft. 2½ in.
Bogie wheelbase	9 ft. 6 in.
Bogie centres	15 ft. 4 in.
Wheel diameter	3 ft. 7½ in.

It will be noticed that in both these designs the H.T. tap-changer is immediately adjacent to the controller and therefore a direct mechanically-operated drive has been adopted. This is similar in the two types, although in the igniton locomotives there is an intermediate resistance notch between each of the 20 tap-changer positions in order to preserve a satisfactory graduation of tractive effort.

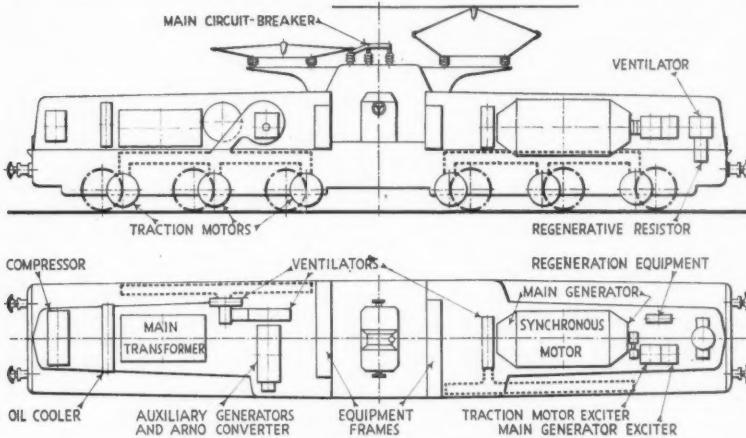


Fig. 1—Single-phase/d.c. converter locomotive

applying 50-cycle single-phase current to traction. Although the four designs differ electrically, their construction falls into two categories, according to wheel arrangement. Thus the dimensions of the a.c./d.c. converter Co-Co are the same as those of the Co-Co with phase and frequency conversion; and similarly the Bo-Bo rectifier locomotives have the same dimensions as the four-axle machines with 50-cycle motors.

Three of these designs were illustrated in our October 29 issue. The two rotary-converter types have the following dimensions:—

Length overall	62 ft. 0 in.
Height to cab roof	12 ft. 1½ in.
Height to top of equipment compartments	
Width overall	9 ft. 2½ in.
Bogie wheelbase	9 ft. 6 in.
Bogie centres	15 ft. 4 in.
Wheel diameter	3 ft. 7½ in.

Fig. 1 shows the layout of the machinery in the a.c./d.c. converter type. This is the only case in which the main transformer has not been housed centrally, but is located in one end compartment. At the other end of the locomotive is the main motor-generator group, consisting of a synchronous motor direct-coupled to two d.c. machines, each supplying the traction motors in one bogie. As described in our July 10, 1953, issue, the traction motors have separately-excited fields in addition to their normal series excitation, and a traction motor exciter is therefore incorporated with the motor-generator set.

M.G. driving motor is connected automatically to a half-voltage tap on the main transformer, and when synchronism is attained, is switched to full voltage.

The locomotive weighs 120 tons, to which the rotary converter contributes 20.8 tons and the transformer six tons.

Three-Phase Converter Locomotive

So far none of the single-phase/three-phase Co-Co locomotives is reported in service, but the arrangement of their apparatus is shown in Fig. 2. Here there is a rotary group in each end compartment. At the left-hand end

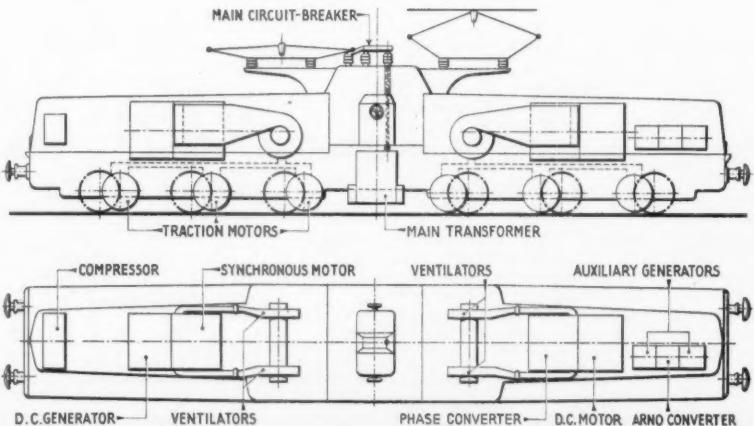


Fig. 2—Single-phase/three-phase converter locomotive

The Bo-Bo bogies are similar to those of the S.N.C.F. high-speed locomotives 9003 and 9004 with this wheel arrangement, although some of the damping devices are omitted because the locomotives with 50-cycle motors are limited to 65 m.p.h. and those with ignitron rectifiers to 74·5 m.p.h. The body is supported from the bolster by lateral laminated springs, and the bolster is carried by bearing surfaces on the main bogie frame, which in turn rests on vertical coil springs mounted on the equalising beams. The gearcase is integral with one side of the bogie frame and transmission is by cardan shafts concentric with the axles. Double-reduction gearing is fitted, and the motors, mounted close together in the centre of the bogie, are interconnected by a coupling gearwheel.

In the ignitron locomotive the 8 in. dia. tubes are water-cooled. Radiators are mounted laterally in the locomotive and, like the oil-cooler, which is integral with the transformer, are ventilated by air from the traction motor blowers.

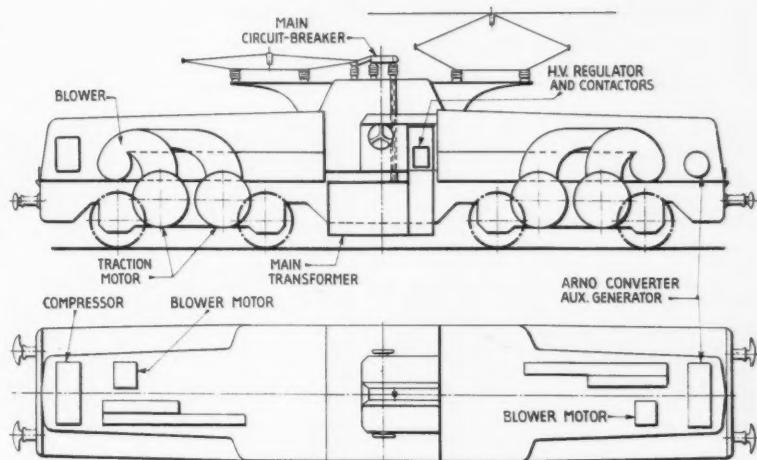


Fig. 3—Bo-Bo locomotive with 50-cycle traction motors

presented on the same occasion by for Electric Traction Development, Monsieur M. Garreau, Chief Officer appeared in our May 14 issue.

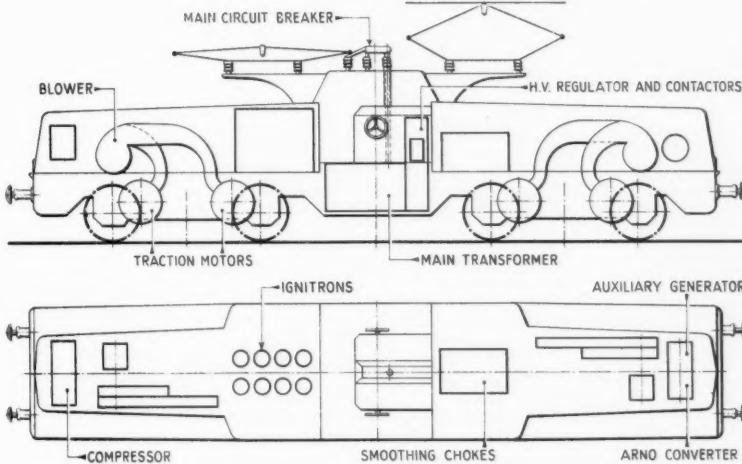
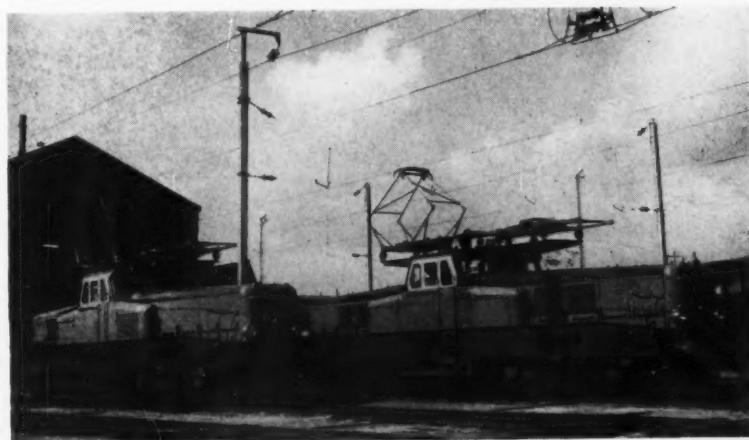


Fig. 4—Bo-Bo locomotive with ignitron rectifiers

The Bo-Bo locomotives with 50-cycle motors weigh 80 tons, including 10·9 tons for the transformer and tap-changer and 2 tons for the interpole shunts. The weight of the ignitron design is 83 tons, to which the transformer and tap changer contribute 12·8 tons, the rectifiers 2 tons, smoothing chokes 3·8 tons, and water-coolers 1·2 tons. There is, however, a saving in weight in the motors, which weigh 3·2 tons each without gears in comparison with the 4 tons of the 50-cycle motors.

Full details of all these locomotives were given in a paper presented to the Institution of Electrical Engineers on May 6 by Monsieur F. Nouvion, Chief Engineer in the Electric Traction Development Division, French National Railways. A review of Monsieur Nouvion's paper, from which the illustrations are reproduced, and of a paper

BRITISH STANDARD DEFINITIONS FOR USE IN MECHANICAL ENGINEERING.—The latest addition to the series of what may be termed basic engineering standards is the code of definitions for use in mechanical engineering recently issued by the British Standards Institution. Ambiguity in the use of common terms frequently occurs and inevitably leads to confusion. The aim of this standard has been to provide a logical code of definitions which are both clear and consistent. No less important is the fact that students encouraged to use the code will find it of great assistance to them in their appreciation of the theoretical conceptions on which all practical engineering is based. The eight sections of the standard relate to construction, drawings and schedules, geometry of parts, size and tolerances, limits and fits, screw threads, surface texture and gauges, respectively. Copies of standard B.S.2617: 1954 may be obtained from the Sales Branch, British Standards Institution, 2, Park Street, London, W.1. Price 6s.



Rectifier (left) and a.c. motor (right) Bo-Bo locomotives, at Mohon locomotive depot

Realignment and Regrading of an American Freight Line

The 25-mile Missouri Pacific Line from Kansas City to Osawatomie is being re-located



Constructing a pier of one of the Big Blue River bridges founded on rock, seen exposed under crane (left centre)

THE Missouri Pacific Railroad is now embarking upon the improvement of its Kansas City-Osawatomie section by realignment and regrading, to ease curvature and gradients and reduce overall length. It is single line and about 25 miles long, and carries mainly freight.

The work is being carried out piece-meal in four lengths 3, 3, 6 and 13

to Dodson; an illustration shows these two lengths in plan. The ruling gradient is being reduced from 1 in 88½ to 1 in 143 throughout both.

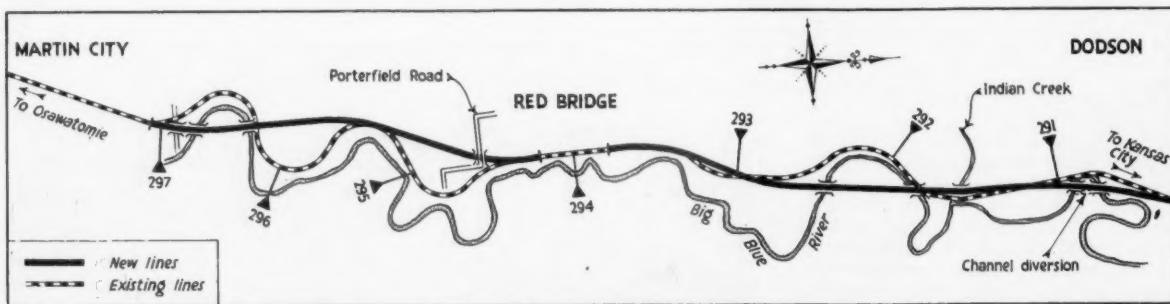
Between Red Bridge and Martin City there are curves as sharp as 13½-ch. rad., but in future there will be none sharper than about 87-ch., and the aggregate curvature will be reduced by no fewer than 529 deg. Reduction in length will

rock, and there are two long cuttings with a maximum depth of some 50 ft., mostly in rock. The largest embankment is between two new bridges over the Big Blue river, and has a core of earth sheathed in rock from near-by cuttings; elsewhere fills are mostly constructed from borrow-pits. The earthwork contractors are using a formidable fleet of earth-moving plant including a 2½-yd. shovel, 3-yd. dragline, and ½-yd. shovel excavators, and 27 dump trucks, scrapers wagons and trucks, and five dozers, also cranes, rollers, trucks and compressors.

Major Bridges

The two major bridges over the river are identical, each having one 70-ft. and two 60-ft. spans, supported by R.C. concrete abutments and piers founded directly upon solid limestone near bed level at both sites. For this reason also, it was found economical to build the abutments as rigid-frame concrete trestles or approach spans each 51 ft. 6 in. long overall, half diagonally buried in the end slopes of the adjacent fill. There is also a single-span deck plate-girder road underbridge, and there are numerous concrete box-culverts, the largest 14 ft. × 12 ft., which will be used as a second road underbridge.

As will be seen from the sketch map, the two three-mile lengths, one on each side of Red Bridge, have many features in common. One is the replacement of a tortuous original alignment following the windings of the river by a nearly-straight line cutting across one or two river loops and through several hill-



Old and new alignments between Martin City and Dodson, Missouri Pacific Railroad. The section between Red Bridge and Martin City is under construction

miles long, respectively. As well as effecting the above improvements the administration is taking the opportunity to raise formation in some lengths to secure greater safety against flooding.

The first length to be undertaken was from Red Bridge to Martin City and work is now in hand on these three miles, and land is being acquired for the second similar length from Red Bridge

amount to 0.59 miles or about 16 per cent. Between Red Bridge and Dodson the sharpest curvature will be reduced from about 13½-ch. to 63-ch. rad., and the aggregate curvature by 243 deg.

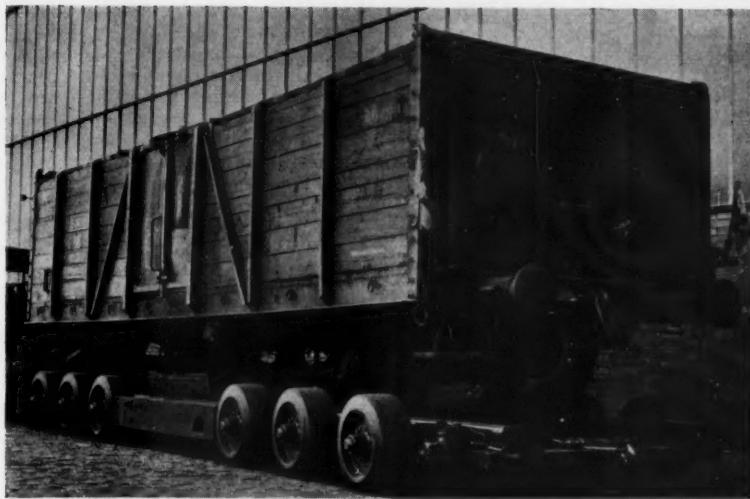
Improvement of the Red Bridge-Martin City section was undertaken first as the conditions there were worse than elsewhere. It is involving the movement of some 341,000 cu. yd. of earth and 156,000 cu. yd. of

spurs, round which the river winds. Near Dodson, the river loop will be decapitated by a diversion.

The six-mile Redel-Stillwell length and the 13-mile Wagstaff-Paola length—the latter extending to within seven miles of Osawatomie—will be improved successively as funds become available. The works are under the general supervision of Mr. W. H. Hobbs, Chief Engineer of the Missouri Pacific system.

Road Transporter for Railway Wagons

Improved design with protected steering mechanism able to travel at higher speeds without vibration



German railway wagon being conveyed on new 12-wheel road transporter developed by Siegener Eisenbahnbedarf A.G.

FOR many years in Germany special attention has been given to the problem of meeting road motor competition with the railways, which has a special attraction when a factory or other installation has no siding connection with the line. In an endeavour to remove these disadvantages special vehicles able to convey railway wagons through the streets have been constructed. These have proved so satisfactory that the demand for them has continually increased. Many mechanical problems need to be solved, however, in order to design a vehicle answering all requirements. With the early designs speed on the road was very low and demands for quicker conveyance could not be met. They gave rise to much vibration, even when running light, and objections were raised to their use in towns; a 6 m.p.h. limit was imposed. It is to be noted that special permission has to be obtained to run any vehicle exceeding 2·5 m. (8 ft. 2 in.) overall width.

In an attempt to meet these difficulties, the Siegener Eisenbahnbedarf A.G., of Dreis-Tiefenbach in Siegen, has developed a greatly improved design, seen in the accompanying illustrations, possessing novel and interesting features.

Chassis Design

The chassis is entirely different from former types, in which the space between the longitudinals is taken up by the steering mechanism. In this design these members are hollow girders and most of this equipment is located either in them, or very close to them, in a protected position. The longitudinals are carried on crossbars on which they can

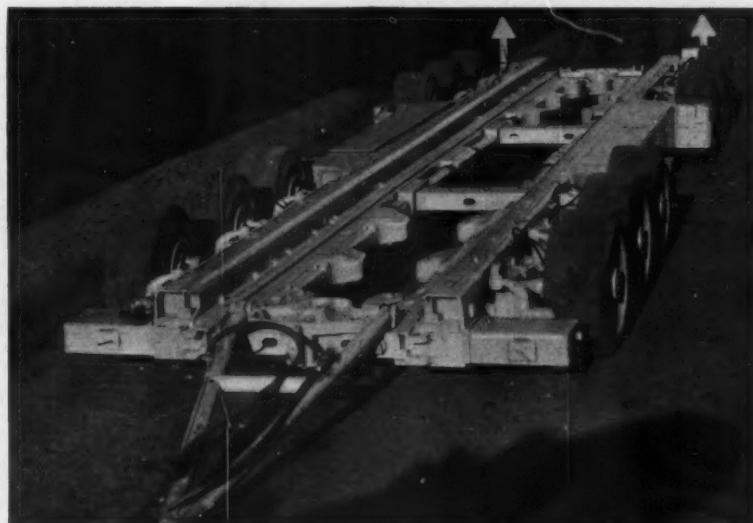
be adjusted laterally to cover differences in rail gauge. The rails themselves, on which any vehicle being carried rests, are on the inner portion of the girders but the resultant stresses are of no practical consequence, owing to the particularly strong form given to the girders. The cross members can be hollow or solid. Drawgear and steering arrangements are fitted to the end cross members. Rail gauges of from 750 mm. (2 ft. 5½ in.) to 1,600 mm. (5 ft. 3 in.) can be catered for. In the case of the last mentioned the rails are on the top of the girders.

The axles individual to each set of wheels swing parallel to the centre line of the vehicle to obviate the unequal distribution of wheel load which occurs when axles swing transversely to such centre line. The steering rods pass through the hollow cranks carrying the wheels with sufficient clearance to ensure that movement cannot affect the steering action. The actual axles are hardened and ground. Lead based bronze bearings are continually supplied with oil under pressure from a hydraulic high pressure lubricator.

Suspension System

Carrying the wheels in this manner and using a hydro-pneumatic suspension has made it possible to locate the mechanism completely within the hollow longitudinals. The levers attached to the axle mechanism transmit the forces to a piston in an oil cylinder through the connecting rods. The mechanism for three or four wheels is combined in one group in such a way that they are all connected to the suspension system by oil pipes distributing the forces equally to all wheels when traversing uneven ground. The system consists of two or more cylinders, the upper chambers of which are filled with nitrogen under pressure, the lower with oil. This gives a constantly good cushioning at all loads and the natural frequency of a loaded and an unloaded vehicle are practically the same, as practice has proved.

In older designs in which the steering mechanism occupies the space between the longitudinals it is exposed to damage and difficulties can be experienced with wear in the ball joints and other items.



Chassis, showing girder-type longitudinals adjustable to suit gauge of wagon to be conveyed

Locating this gear in the longitudinals has reduced the joints to a minimum and eliminated the ball pattern. By transmitting the motion through the hollow axles to the wheels the difficulties experienced with resonance effects upsetting the steering action, met with in other designs, have been overcome. A hydraulic cylinder in the middle of the vehicle increases the motion initiated by the drawgear and enables the vehicle to keep exactly in the path of the tractor hauling it, even at high speed. Approximately 10 m. (32 ft. 10 in.) long, it can traverse curves of 6·5 m. (21 ft. 4 in.) radius, measured from its centre line,

an improvement on the earlier designs. Adjustment to suit different gauges also is affected by hydraulic action. If necessary, to clear low bridge headways, the rails, normally 310 mm. (12·4 in.) above ground level, can be lowered by regulating the oil in the cylinder of the suspension system, and independently of the load.

Alternative Tyre Equipment

Normally solid tyres are provided but pneumatic also can be used. The latter are of twin type on account of the high wheel load, arranged for independent rotation in the twin block, separated by

a thrust ball bearing. The two are uniformly braked. There is an oil hydraulic brake operated by the tractor on the lockheed system, which is made in Germany by the firm of Tewes. Connection between tractor and transporter is pneumatic. There is an independent hand hydraulic brake for use when no tractor is attached.

These new vehicles are being used not only to carry railway wagons but containers, transformers and items of heavy machinery, bridge girders, and so on. Very heavy loads can be dealt with by using two transporters with a connecting bridge.

Universal Filling Compound

Metallics and resin medium for repairing damaged panelling

A FILLER of almost universal application has been developed by Birmetals Limited, of Birmingham. Known as Filzall, the material can be applied to repairs to the bodywork of road transport vehicles, and for the surface filling of sheet metal work, castings, stonework, and also as a wood filler. It will withstand a stoving temperature of 130° C. and is applied at low temperatures, and avoids the distortion of body panels.

Method of Application

A compound of metallics and resins, the filler can be applied by means of a Birmetal electric paddle suitable for 230-240 V., or 110 V., or by brazing or

welding torch. Wooden paddles of various forms are supplied for imparting a smooth finish. Special skill is not required for its application, and the material is readily dressed with a file or electric sander; a feather edge finish is obtained.

The material is non-toxic, and is not objectionable to the operator, neither does the material shrink, which enables the filling of deep indentations to be carried out in one continuous application. A further advantage claimed is that it does not sag or run and is particularly suitable for repairs to vertical surfaces. It is stated to be one-quarter the weight of metallic solders, and two sticks of Filzall, some 4 oz. in weight,

are said to fill as much space as 1 lb. of metallic solder.

It is necessary to remove grease or dirt, and roughen the surface to be repaired with coarse glass paper. The melted Filzall should be spread thinly in the centre of the damaged part and worked from the centre outwards. Final smoothing is done with the heel of the paddle. Because of its adhesion characteristics, Filzall will withstand vibration indefinitely. A test specimen of the material has been subjected to more than 100,000,000 reversals of $\frac{1}{4}$ -in. deflection; no cracking or loss of adhesion occurred. It is pointed out that Filzall is not intended to be a solder for joining metals.



Left: Application of Filzall filler using the Birmetals electric paddle, and right, dressing the area, using a sanding disc to produce a glaze finish



OVERHEAD EQUIPMENT FOR SOUTHEND AND CHELMSFORD ELECTRIFICATION.—The overhead equipment to be supplied by British Insulated Callender's Construction Co. Ltd., for the Shenfield-Southend and Shenfield-Chelmsford electrification schemes will be generally similar to that in-

stalled on the section between Liverpool Street and Shenfield which was also supplied and installed by the company. It will use on the main track a compound catenary system consisting of a hard-drawn copper strand as the main catenary, an auxiliary catenary supported by solid copper

dropper wires and a grooved cadmium-copper contact wire suspended from the auxiliary catenary by loop droppers. The three wires will be jumpered together in every span and will provide a flexible system, enabling trains to run at speeds of up to 70 m.p.h.

Australian Capital Territory Railway

A five-mile standard-gauge line of the Commonwealth Railways linking Canberra with the New South Wales system

THE 4-ft. 8½-in. gauge Trans-Australian Railway, extending for more than 1,100 miles from Port Pirie Junction, South Australia, to Kalgoorlie, Western Australia, and the 3-ft. 6-in. gauge Central Australia Railway from Port Augusta, on the Trans-Australian line, to Alice Springs, approximately 700 miles in length, are the most important lines of the Commonwealth Railways. In the Northern Territory the Commonwealth Railways operate the North Australia Railway, a detached 3-ft. 6-in. gauge line, 316 miles long, from Darwin to Birdum. The fourth line to form part of the Commonwealth Railways is only five miles long, and serves the Federal capital at Canberra.

Canberra, on the Molonglo River, lies in the northern part of the Capital Territory, which has a total area of 900 sq. miles. The site of Canberra is about 12 sq. miles and the population is now 28,000. The Capital Territory was ceded to the Commonwealth of Australia by New South Wales and is in the south-eastern part of that State. The capital lies in an amphitheatre of hills and nearby are large areas of gently undulating country whose general contours lend themselves to effective city design and offer no great engineering difficulties in the operation of the line.

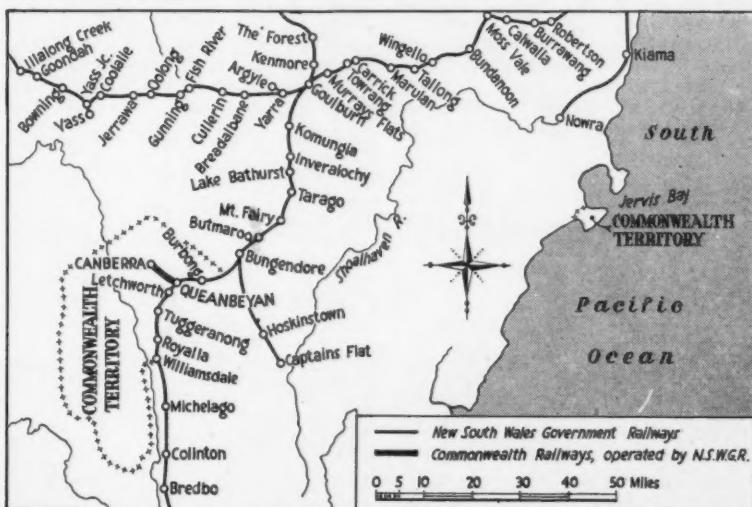
Canberra is 203 miles by rail from Sydney and 513 miles from Melbourne. The building of the city began shortly before the 1914-18 war when the nearest railway connection was at Queanbeyan on the Sydney-Bombala line in New South Wales, just over the border of the Territory. During the 1914-18 war the New South Wales Railways built a 4-ft. 8½-in. gauge line for the Commonwealth Government, five miles in length, from Queanbeyan to Canberra, and it was used originally for the carriage of

materials used in building the city and not for passenger services. Canberra was occupied officially as the seat of Government in 1927 and passenger services were then begun.

Operation by N.S.W. Railways

The Capital Territory Railway, although owned by the Commonwealth Railways and staffed at Canberra

bala line. Between Bungendore and Burbong, about 185 miles from Sydney, the railway first approaches the Capital Territory and passes immediately alongside the Territory-New South Wales border through Queanbeyan, marking the eastern border for another 20 miles or so southward. At Queanbeyan, just after leaving the station yards, trains for Canberra pass out of New South Wales



Railways in southern New South Wales and the Federal Capital Territory

by Commonwealth officials, is operated by the New South Wales Government Railways, to which belong all rolling stock and locomotives used. The route from Sydney to Canberra is first that of the main Sydney-Melbourne express route as far as Goulburn, where it turns due southward along the Cooma-Bom-

on to Commonwealth Railways metals, taking a north-easterly direction for the Federal Capital away from the Bombala line.

Canberra Station is situated in the south-eastern outskirts of the city. It has a long, single platform, with a commodious station approach for buses and



Photo]

(Left) Station and yards at Queanbeyan, New South Wales Railways, with Canberra line on left in foreground; (right) Sydney-Canberra "Federal City Express" near Canberra



[G. Bakewell

vehicles meeting trains. In the original designs for the city, the railway was intended to pass through the civic and market centres and run due north for some sixty miles to link with the main New South Wales southern line at Yass. Provision was made for several stations in the city.

Projected Extensions

The depression which began in 1929 enforced the postponement of some constructional works necessary, including the extension of the railway through the city to Yass. No construction has since been undertaken but this route and a practicable route for a railway from Canberra to Jervis Bay, about 123 miles long, have been surveyed in fulfilment of a constitutional requirement that the Federal Capital should have access to the sea.

The daylight "Federal City Express" which leaves Sydney at 8 a.m. every day

except Sunday reaches Canberra at 1.52 p.m. Refreshments are served and seats must be reserved. On the return journey the express leaves Canberra at 4.10 p.m. reaching Sydney again at 9.48 p.m. Three days a week this express from Sydney connects at Queanbeyan with a diesel service for Bombala.

On four days a week passengers from Sydney to Canberra may travel by a night train, the "Kosciusko Express," which has sleeping cars. This goes through to Bombala. Its name is taken from Mount Kosciusko in the Australian Alps, famous as a centre for snow sports. Coaches for Canberra are detached at Queanbeyan and are run on a mixed train over the Commonwealth line to Canberra which is reached in the early morning. Passengers from Melbourne, after leaving the Victorian Railways "Spirit of Progress" at Albury, travel by the "Sydney Express" as far as Goulburn where they change to a

mixed train which leaves for Canberra at 7.15 a.m. reaching there at 10.45 a.m. the same morning. The Melbourne-Sydney express carries a sleeping car which is attached to the mixed train at Goulburn. On the return journey a train leaves Canberra in the evening connecting with the Sydney-Melbourne express at Goulburn where similar arrangements apply.

At times of national ceremonies, such as the Commonwealth Jubilee Celebrations in 1951, the railway is called on to handle special trains for army, navy or air force personnel who may be participating, in addition to extra passenger traffic. When the Queen and the Duke of Edinburgh visited Canberra, many special trains brought visitors into the city and the siding accommodation for shunting the trains was severely taxed and some had to be sent back to Queanbeyan. The line is earth-ballasted only and for a portion of the way is unfenced.

New Goods Shed at Kuala Lumpur, Malayan Railway

Designed with view to eventual complete mechanisation of facilities



Transhipment platform, showing roof lighting

THE new goods shed recently built in Kuala Lumpur is the largest and most modern transhipment shed on the metre-gauge Malayan Railway system.

The building is 510 ft. long and 75 ft. wide. It is framed with lattice steel portals consisting of light angles and channels connected by round steel bars. This form of construction eliminates the need for roof supports; large light steel sliding doors 20 ft. x 15 ft. allow free movement of hand and mechanically propelled trolleys conveying traffic between rail and road vehicles.

There is generous provision of non-actinic roof lights and patent cylindrical roof ventilators.

Situated in the centre of the city of Kuala Lumpur, the capital of the Federation of Malaya, the shed has been designed with a view to complete mechanisation in a few years' time.

Two tracks each 300 ft. long and separated by a platform 20 ft. wide extend into the shed from the north end, facilitating transhipment of wagon loads of general merchandise received from all parts of Malaya.

Removal of a portion of the transhipment platform will permit instal-

lation of a modern slat conveyor belt and closed loop capstans; the provision of an additional track is intended for the loading of "forwarding" traffic direct from road vehicles.

Provision for Second Storey

Heavy reinforced concrete foundations have been incorporated at one end of the shed to allow for future construction of a second storey capable of carrying 2 cwt. per sq. ft. and served by a 2-ton lift.

Overlooking the interior of the shed is an office block 60 ft. x 26 ft. raised to a height of 12 ft. above the general platform level, which is 3 ft. 4 in. The office is accessible to the public by a short staircase leading from the road alongside the shed.

Beneath the office at platform level are a "valuable" goods store, toilet facilities, and general accommodation for stores and stationery.

DIFFUSE REFLECTION GLASS.—After much experiment, Pilkington Bros. Ltd., of St. Helens, Lancs., has produced a glass with both surfaces lightly obscured, which is claimed to mitigate reflection without actually reducing the amount of light reflected. It is available in sizes up to 18 in. x 12 in., and can be obtained toughened if required. Bent glass to approved curves is available as well as flat glass. The glass is particularly suitable for meter and gauge glasses where the observer is positioned at some distance from the instrument panels and is unable to move into a position to avoid reflections. The glass only functions satisfactorily so long as the dial face of the instrument is reasonably close behind the glass.

RAILWAY NEWS SECTION

PERSONAL

The following appointments have been announced by the Argentine Ministry of Transport:—

Engineer Adolfo Kirkerup has been confirmed as Administrator General of the General Belgrano Railway. An illustrated biography of Engineer Kirkerup was published in our September 17 issue when his acting appointment to that position was recorded.

Engineer Manuel Pedro Bertolotti has been appointed Administrator General of the General Urquiza Railway.

Engineer Carmelo A. Pizzorno becomes Director of Studies & Technical Control of Railway Transport.

Mr. Eric A. Wilkinson, for the past four years Assistant Divisional Manager, South Eastern Division, British Road Services, has been appointed a Director of Hanson's Buses Limited, Hanson Haulage Limited, and associated companies. He was formerly Secretary of Bouts-Tillotson Transport Limited.

Mr. J. Lillie-Costello has been appointed Public Relations Manager of Shell-Mex & B.P. Limited.

Sir Rupert de la Bère, Bt., K.C.V.O., M.P., a Managing Director of Proprietors of Hay's Wharf Limited and other companies, has been appointed the first Vice-President of the Institute of General Managers.

On November 19 in the District Engineer's office, Leeds, North Eastern Region, British Railways, in the presence of a large number of railway Officers of all departments, Mr. Reginald Cowling Mosedale, Senior Technical Assistant to the District Engineer, Leeds, was presented with a solid gold inscribed wrist watch on the occasion of his retirement after 40 years of railway service. Mr. R. G. Booth, District Engineer, Leeds, made the presentation in the presence of a large number of railway officials of all departments. Mr. Mosedale's retirement was recorded in our October 29 issue, when a biography relating to him was also published.

Councillor H. R. Rowlands has been appointed a member of the Transport Users Consultative Committee for the West Midland Area, to represent Local Authorities.

Mr. C. G. Harrison, A.M.I.Mech.E., M.I.Loco.E., A.M.I.I.A., General Manager, Malayan Railway, will be on leave in the United Kingdom between early January and mid-February.

Colonel R. M. Wright, of the Victorian Railways, has been appointed to command the new 8th Railway Group of the Australian Army. Members of the Group, already trained in their specific technical roles, will be available for immediate operational duty at home or abroad.

We regret to record the death, at the age of 72, of Lt.-Colonel Lawson Billinton, C.B.E., M.I.Mech.E., Locomotive Engineer, London Brighton & South Coast Railway from 1912 to 1923. Colonel Billinton, who was the son of Mr. J. R. Billinton, a former Locomotive Engineer of the L.B. & S.C.R., was educated at Tonbridge School, and later underwent a course of practical and theoretical instruction in mechanical engineering. He entered the L.B. & S.C.R.



*The late Colonel L. B. Billinton
Locomotive Engineer, L.B. & S.C.R.,
1912-1923*

works at Brighton as a pupil, passed through all branches and was subsequently appointed a draughtsman. After his promotion as an inspector he went to Glasgow to superintend the construction of bogie steel wagons then being built for the L.B. & S.C.R., and for general inspection work. He was then placed in charge of a number of experiments with fuel oil in locomotive engines. His promotion as Assistant Locomotive District Superintendent, New Cross, followed, and he subsequently became Chief Superintendent at New Cross, holding this position until his appointment in 1912 as Locomotive Engineer. During his period of office as Locomotive Engineer Colonel Billinton did much to raise the locomotive standards of the line, particularly with regard to the introduction of heavy and powerful tank engines. The "Baltic" (4-6-4) locomotives of his design were pioneers of their type in this country. During the 1914-18 war Colonel Billinton served in Roumania, the Caucasus, Turkey, and Russia, being mentioned in despatches.

Sir Graham Hayman has been elected Deputy President of the Federation of British Industries. Sir Graham Hayman is Chairman of the British Tyre & Rubber Co. Ltd. From October, 1950, to October, 1953, he was Chairman of the Association of British Chemical Manufacturers, of which body he is now a Vice-President.

We regret to record the death, at the age of 78, of Lt.-Colonel Percy John Cowan, M.B.E., M.Inst.C.E., M.I.Mech.E., formerly of the Great Northern Railway and later of the Egyptian State Railways. During the 1914-18 war, Lt.-Colonel Cowan served with the Mesopotamian Expeditionary Force with the Royal Engineers and with the Railway Directorate. He was awarded the George Stephenson gold medal and Telford premium in 1903, and the Willans premium in 1918. He was also a Fellow of the Royal Society of Arts, of which body he was Vice-President from 1941 to 1944.

Mr. Stanley Kennedy has been appointed Chairman of the Bristol Tramways & Carriage Co. Ltd., in succession to Major F. J. Chapple.

Mr. B. Samuel, M.I.Mech.E., has retired from the service of Babcock & Wilcox Limited, after 52 years of active association with steam generation.

Dr. J. W. Bondi, a Director of Associated British Oil Engines (Export) Limited, recently left this country for an extensive tour of agents and sub-agents in the Belgian Congo and Portuguese West Africa.

Heenan & Froude Limited has acquired the balance of the issued capital of British Organic Products Limited. Mr. W. Bryan Draper, Managing Director of Industrial Waste Eliminators Limited, has been appointed to the board of British Organic Products Limited, the other Directors being Mr. F. J. Fielding (Chairman), Mr. A. C. Hayes, and Mr. A. H. Langland. The company will be carried on as a wholly-owned subsidiary of Heenan & Froude Limited.

Mr. T. W. Ballard, Works Manager of Tyer & Co. Ltd., has retired after 53 years of service with that company, having held the position of Works Manager since 1925. A farewell party was held at Beale's Restaurant, Holloway, at which presentations were made by Mr. D. S. Bennett, Managing Director of Tyer & Co. Ltd., on behalf of the board and office and works employees.

Mr. N. W. Rolfe, A.C.A., F.C.I.S., has been appointed Secretary/Accountant of the Birmingham & Midland Motor Omnibus Co. Ltd., and will take up his duties early in the New Year. Mr. Rolfe is at present Chief Accountant and deputy to the General Manager of Manchester Corporation Transport Department and was previously Secretary/Accountant to the United Counties Omnibus Co. Ltd. at Northampton.



Mr. W. Griffiths

Appointed District Commercial Superintendent, Western Region, British Railways



Mr. C. J. H. Schoombie

Assistant General Manager (Staff), Johannesburg, S.A.R. & H., 1952-54



Mr. J. G. Grovè

Appointed Assistant General Manager, (Commercial), S.A.R.

Mr. William Griffiths, Assistant District Commercial Superintendent, Swansea, Western Region, British Railways, who has been appointed District Commercial Superintendent with headquarters at Shrewsbury, with responsibility for the areas of North Wales and Border Counties of Cheshire and Shropshire served by the Western Region of British Railways, joined the former Great Western Railway at Shrewsbury in 1920. He was selected for special training in various departments of the railway in 1929 and, on completion of this training, served at the Paddington headquarters for seven years and was for a period Personal Clerk to the Chief Goods Manager. He has been Goods Agent at Penzance, Slough, and Swansea, and Chief Clerk at Paddington Goods. In 1942, he became Chief Clerk to the Cardiff District Goods Manager, and was transferred to Swansea two years later. For the past eight years Mr. Griffiths has been Assistant District Commercial Superintendent at Swansea.

We regret to record the death of Mr. A. C. Everard of the Railway Clearing House, who was also Secretary of the British Transport Commission Public Relations & Publicity Committee and of various commercial subcommittees. Mr. Everard had been associated for many years with the committee work of the railways' publicity business, and previous to the appointment which he held at the time of his death, had been Secretary to the Railway Executive Publicity Committee, the R.E.C. Publicity Committee, and the R.C.H. Advertising & Publicity Committee.

Cremation took place at Kingston, Surrey, on November 22. Among those present at the service, in addition to family mourners, were:—

Railway Clearing House:—

Messrs. T. J. Lynch, R. F. Rose, H. S. Hunt, J. G. Want, S. H. Welsh, J. Mills and F. E. Joiner.

British Transport Commission:—

Messrs. D. S. M. Barrie (representing Mr. J. H. Brebner); S. Bolton.

British Railways:—

Messrs. M. B. Thomas, George Dow, F. D. Y. Faulkner, R. Hurford (representing Mr. C. J. Rider); J. F. Wheatley, G. F. C. Olden, A. G. Meredith (representing Mr.

A. C. B. Pickford and Officers of the Commercial Department, Western Region); and E. H. Evans (representing Commercial Superintendent, Waterloo, and British Railways Goods Rates Assistants). *T.S.S.A. (R.C.H. Branch):—* Mr. L. Rigby.

Mr. C. J. H. Schoombie, Assistant General Manager (Staff), Johannesburg, South African Railways & Harbours, who, as recorded in our November 19 issue, is retiring, joined the service in 1912 as a messenger in the Transportation Department at Kimberley. He was transferred to the System Manager's office, Kimberley, in 1924, after having served at various stations. In 1928, Mr. Schoombie was transferred to the System Manager's office, East London, where he was employed in the Staff and Trains sections until March, 1932, when he became Welfare Officer in the office of the Chief Mechanical Engineer, Pretoria. In 1933, he was appointed Senior Clerk on the General Manager's Parliamentary Staff, Johannesburg, and, two years later, he became Principal Clerk in the office of the S. A. R. Service Commission, Pretoria. On June 15, 1936, Mr. Schoombie was appointed Goods & Passenger Agent, Bloemfontein, and, during 1937, he became Assistant Superintendent (Special Duties) attached to the General Manager's Parliamentary Section, Johannesburg. Thereafter he became Goods & Passenger Agent, Pretoria; Assistant Superintendent (Operating) in the General Manager's Office, and at Cape Town; Superintendent (Operating & Commercial) Kimberley; Superintendent (Operating) Durban; and Superintendent (Operating & Commercial), Pretoria. He was subsequently System Manager at Kimberley, Bloemfontein, and Cape Town respectively. On May 1, 1952, Mr. Schoombie was promoted to the position of Chairman of the S. A. R. Service Commission, Pretoria, and, on December 17, in the same year, he became Assistant General Manager (Staff), Headquarters, Johannesburg, the position from which he now retires.

Mr. J. G. Grovè, B.A., B.Com., Chief Superintendent (Commercial), South African Railways, who, as recorded in our November 19 issue, has been appointed Assistant

General Manager (Commercial), was born at Clanwilliam in the Cape Colony on July 7, 1906, and joined the service as a Transportation Pupil at Pretoria at the beginning of January, 1929. He became Commercial Agent at Durban on July 1, 1932, and, on September 1, 1935, was promoted to be Senior Clerk in the Parliamentary section of the General Manager's office, Johannesburg. After progressing through the intermediate grades, Mr. Grovè was appointed Superintendent (General) on December 1, 1944, and Understudy to the Chief Superintendent (Commercial) on November 4, 1946. On June 29, 1951, he was appointed Chief Superintendent (Commercial), the position he now vacates.

We regret to record the death on November 11, at the age of 85, of Mr. Hubert Job Guest, Goods Commercial Manager of the former London Midland & Scottish Railway from 1928 to 1930.

The funeral took place on November 15 at Stourbridge, Worcs. In addition to family mourners, among those present were:

Mr. J. H. S. Guest, Road Motor Engineer's Department, London Midland Region.

London Midland Region:—

Messrs. E. S. Hunt, Assistant Regional Manager (also representing Mr. J. W. Watkins, Chief Regional Manager); H. G. N. Read, Assistant Commercial Superintendent (also representing Mr. E. W. Arkle, Commercial Superintendent); E. W. Powell, District Goods Superintendent, Wolverhampton, and L. C. Brittlebank, formerly District Goods Superintendent, Birmingham.

INSTITUTION OF MECHANICAL ENGINEERS

The following elections have been announced by the Institution of Mechanical Engineers:—

Member:—

Mr. C. Dannatt, O.B.E., M.C., D.Sc. (Durham), Metropolitan-Vickers Electrical Co. Ltd.

Associate Members:—

Messrs. P. C. Bevis, Broom & Wade Limited, C. S. Clegg, I.C.I. Limited, D. P. T. Copcutt, I.C.I. Limited, W. N. Ismay, B.Sc. (Eng.) (Lond.), I.C.I. Limited, J. C. B. Nicol, B.Sc. (Glas.), I.C.I. Limited, R. C. Spooner, M.A. (Cantab.), I.C.I. Limited, R. J. Williams, Vacuum Oil Co. Ltd.

East African Railways Display at Nakuru Show

Models and full-size exhibits indicating the Administration's many activities



Sir Evelyn Baring, Governor of Kenya, accompanied by Mr. A. F. Kirby, General Manager, East African Railways & Harbours, and Mr. A. Watts-Williams, President of the Royal Agricultural Society of Kenya, talking to members of the E.A.R. St. John Ambulance Corps, who named the new E.A.R. & H. ambulance displayed at the show

The many important development projects being undertaken by and the types of new rolling stock arriving in East Africa formed the theme of the East African Railways & Harbours exhibit at the Royal Agricultural Society Show recently held at Nakuru.

One of the most striking features was the 14-ft. long model of Nakuru as it will look when the railway and town developments described in our March 5 issue have been completed. Photographs and descriptive matter drawing attention to the facilities offered by the Commercial and Operating Departments, were exhibited on the walls surrounding the model. Two illuminated panels gave

answers to 24 questions about the railways' activities.

Large-scale models of a Beyer-Garratt locomotive and new wagons were displayed in front of a photographic mosaic. A relief map of East Africa measuring 9 ft. x 6 ft. showed the rail, road and inland waterways routes comprising the East African Railways & Harbours system. The civil engineering work of the Administration was illustrated photographically and also by a model of Kilindini Harbour on which were shown the phases of the extensive development scheme being undertaken.

In an annexe to the main pavilion were displays illustrating the extent of marine,

road, hotel and catering services, staff welfare and housing of staff, and the Stores Department. Films of some of the Administration's activities were shown in a nearby cinema.

Outside the pavilion, a new ambulance presented to the Railway St. John Ambulance Corps by the East African Railways & Harbours, and one of the patrol cars which have been in use where the railway passes through the areas affected by the Emergency were on show.

In the sidings adjacent to the show-ground were one of the new "60" class Beyer-Garratt locomotives; a new lightweight first class coach of the batch being supplied by the Metropolitan-Cammell Carriage & Wagon Co. Ltd. and briefly referred to in our September 24 issue; a new horsebox and cattle wagon; and other new wagons which had only recently arrived in the country.

N.E. Region Federation of Lecture & Debating Societies

Members of the various debating societies in the North Eastern Region recently visited London at the invitation of the Southern Region Lecture & Debating Society. A debate took place at the Waterloo Clerical Staff Dining Rooms when the N.E. Region speakers moved "That this house deplores the influence of tradition and out of date departmentalism in modern railway organisation and desires the immediate introduction of modern business enterprise and initiative" and the Southern Region speakers opposed the motion, which was carried. Mr. A. P. Hunter, Divisional Operating Superintendent, N.E. Region, York, the Chairman of the Federation of Railway Lecture & Debating Societies, expressed thanks to the Southern Region Society on behalf of the Federation for its hospitality. He also conveyed personal messages from Mr. H. A. Short, Chief Regional Manager, and Mr. C. Cooper, Regional Staff Officer, North Eastern Region, who were unable to attend. The Chairman for the evening, Mr. H. C. Lang, Regional Staff Officer, Southern Region, expressed the pleasure of the Southern Region Society in meeting the N.E. Region members again.

Visits were paid next day to the permanent way pre-assembly depot at Woking, Bricklayers Arms motive power



New "60" class Beyer-Garratt locomotive, Metropolitan-Cammell-built lightweight coach, and other new stock on exhibition

depot, the electric car inspection and repair shops at Wimbledon Park, and Gloucester Road Junction signalbox.

Institution of Railway Signal Engineers

At a meeting of the Institution of Railway Signal Engineers in London on October 28, with the President, Mr. J. H. Fraser, in the chair, a paper by Herr G. Reschuh, of Siemens & Halske, entitled "Signal Engineering in Germany Today," was read by Mr. T. S. Lascelles, as Herr Reschuh was unavoidably prevented from attending.

The paper, illustrated by slides, dealt with panel apparatus with track diagram; details of the panel; relay room equipment; outdoor equipment; track circuits and axle counters; signal box equipment; train indicators and train time recorders; remote control of relay interlockings; C.T.C. equipment; automatic signalling on main lines; simplified equipment for secondary lines; automatic train control; hump yard installations; and protection of level crossings.

Pre-Wired Relays

Mr. E. G. Brentnall, opening the discussion, asked for further information on the statement that the pre-wired relay groups were safer against the influence of extraneous current than ordinary wiring arrangements. He also asked whether the double-filament lamps in colour-light signals were proved.

Mr. J. C. Kubale commented that the signaller's panel was designed as a two-handed system, to be operated by two push buttons; but that was something of a disadvantage, and he wondered why it could not have been arranged for a one-handed operation. As to the statement that the relays were designed to conform to requirements now accepted internationally, he was unaware, from a manufacturing point of view, of any such standard for that type of equipment.

Mr. R. Dell said that, from the illustrations, it did not seem that carbon contacts were used on the relays; although in the paper it was stated that having two contacts in series would prevent any untoward happening, he personally would be rather worried about the position. He wished to hear how the proving of all relays down was effected.

Hump Yard Installations

Mr. T. J. Aldridge, referring to the hump yard installations, wished to know how the indication was given on the control desk of the extent to which each track was filled at a given moment. Was it given by a number indicating the number of vehicles that had entered a specific track, or was it indicated by a figure representing distance? If the latter, such a distance could be measured by high frequency currents, but in that case there would be the problem of showing a vehicle that was still moving along the track and had not yet reached its stationary position.

Mr. J. H. Fraser referred to the dividing up, in Germany, of platform tracks into automatic signalling sections, which was not easy because of the different lengths of trains. He mentioned also the controlling and proving of level crossing barriers over the telephone wires along the line. He also noticed there was no "Stop and proceed" rule in Germany, but that they had subsidiary signals which avoided trains running at caution when the normal signalling was out of order.

In conclusion, he proposed that a message of appreciation be sent to Herr Reschuh for the preparation of a paper so full of interest, and that a cordial vote of thanks be extended to Mr. Lascelles for translating and reading the paper and procuring the slides.

International Internal Combustion Engine Congress

The Papers Committee of the International Internal Combustion Engine Congress to be held in The Hague next May has accepted 28 papers, of which 14 deal with railway traction, 10 with engines for marine and stationary purposes, and four with general subjects.

Papers by British Contributors

Three papers have been accepted from British contributors: "The HI-DYNE Engine for Diesel Traction," by Mr. D. M. Pearce; "Some Practical Aspects of Engine Noise," by Mr. C. H. Bradbury, Chief Engineer of Petters Limited; and "Development of the Opposed Piston Engine to 10,000 h.p. and Over."

Discussion of the papers has been arranged as follows:—

Railway traction: May 23, afternoon working session; and May 24, morning and afternoon working sessions.

General subjects: May 25, morning working session.

Marine and stationary purposes: May 25, afternoon working session; and May 26, morning and afternoon working sessions.

Editorial reference to the congress was made in our October 15 issue.

Presentation to Mr. E. C. Dewick

A silver tea service was presented recently by officers of British Railways, Scottish Region, to Mr. E. C. Dewick, who, as recorded in our October 15 issue, has retired from the position of Estate & Rating Surveyor of the Region. Mr. T. F. Cameron, Chief Regional Manager, officiated at the ceremony.

The accompanying illustration shows officers of the Region assembled for the

presentation; they are (from left to right):—

Mr. H. M. Hunter, Public Relations & Publicity Officer; Mr. L. E. Marr, Manager, Clyde Shipping Services; Mr. I. R. Frazer, Civil Engineer (retired); Mr. J. Blair, Carriage & Wagon Engineer; Mr. J. McCreadie, Operating Superintendent; Mr. C. R. Campbell, Motive Power Superintendent; Dr. W. A. R. Mailer, Medical Officer; Mr. M. S. Hatchell, Mechanical & Electrical Engineer.

Mr. T. F. Cameron; Mr. T. H. Hollingsworth, Commercial Superintendent; Mr. J. G. Dunlop, Accountant; Mr. E. C. Dewick; Mr. A. Cameron Miller, Legal Adviser; Mr. R. M. Scott, Assistant Estate & Rating Surveyor; Mr. A. Stewart, Assistant to Chief Regional Manager;

Dr. T. Sharp, Area Medical Officer, Glasgow; Mr. H. Wallace, Solicitor (retired); Mr. W. Bryson, Signal & Telecommunications Engineer; Mr. C. R. Atkins, Stores Superintendent; Mr. W. L. Turner, Road Motor Engineer; and Mr. J. Hastic, Treasurer.

Postwar Development of the Rhodesia Railways

The principal guest at the dinner given by the Transportation Club in London on November 17 was Sir Arthur Griffin, formerly Chairman of the Rhodesia Railways board, and previously General Manager of the Rhodesia Railways.

Mr. K. W. C. Grand, Chairman of the club, presided, and proposed the loyal toast. Introducing Sir Arthur Griffin, he described him as a great proconsul of transport and Empire-builder.

Sir Arthur Griffin referred to the unprecedented prosperity of the Rhodesias since the war, which had continued—contrary to some forecasts. He went on to describe the methods employed by the Rhodesia Railways to solve the problems of handling the heavy copper and other mineral traffic offering, although at the beginning of the postwar period, they had been handicapped by shortages of locomotives, wagons, and of skilled manpower and housing for their staff.

One of the methods used to assess the capacity of the railway and the adequacy of the existing plant and staff for the demands made on the system was time and motion study. The staff difficulty had been solved very largely by the provision of adequate housing.



Mr. T. F. Cameron making the presentation to Mr. E. C. Dewick

Besides much new rolling stock, equipment which had gone and was going far to help in the movement of traffic over a system which was almost entirely single line was the installation of C.T.C., now in operation over 110 route miles between Bulawayo and Gwelo.

Increased Efficiency

An indication of the efficiency achieved, he added, was the improvement over the last five years in operating statistics, such as the increase in wagon-miles per wagon-day. There had been a marked reduction in repair days in workshops for locomotives and wagons.

Sir Arthur Griffin alluded to the steps taken by the Government of Southern Rhodesia in 1947 to acquire the share capital of Rhodesia Railways Limited; the purchase of the Beira Railway by the Government of Mozambique; and the several loans raised since the war for the improvement of the system—in contrast to the relatively small amount of capital which had been invested in improvements in the previous 40-odd years. Although interest was a burden, the Rhodesia Railways had been able not only to pay their interest charges, but to provide for depreciation.

Principal factors in considering the railway's problems were its resources, the problem of Government control, the racial question, particularly as it affected the employment of skilled labour, and the density of traffic handled.

Mr. Harold Wilmot, Chairman and Managing Director of Beyer Peacock & Co. Ltd., in thanking Sir Arthur Griffin on behalf of the Transportation Club, referred to his wisdom, vigour, and executive ability—where Sir Arthur Griffin was, things happened.

Others present included:

Messrs. L. B. Alexander, M. Barnard, F. L. Castle, C. M. Cock, M. A. Crane, P. H. S. Drew, D. H. Handover, C. F. Klapffer, E. J. Morris, M. D. Morrissey, C. E. R. Sherrington, R. A. Smyrk, G. Sutton, H. Duncan Thoms, W. Cyril Williams.

Revised Main Line Timetables in South Africa

Revised main line train timetables will come into force on the South African Railways on November 29 and will remain in force for twelve months. This procedure of revising timetables once a year was introduced last year and has proved satisfactory.

The "Blue Train" from Johannesburg to Cape Town, which ran only once a week from June to September, will now run twice a week in each direction during the summer. Departure time remains at noon on Mondays and Thursdays from Johannesburg and Cape Town respectively. From June 2 to September 22 next year it will leave Johannesburg on Mondays only and from June 6 to September 26, departure from Cape Town will be on Thursdays only.

The 10.15 a.m. train from Johannesburg for Cape Town on Tuesdays, Fridays, Saturdays and Sundays will leave daily except Mondays and Thursdays up to January 30, 1955, when the present schedule will be resumed, and the 10 p.m. train on Mondays, Wednesdays and Saturdays will leave Johannesburg daily, except Wednesdays, up to December 31, 1954, on Mondays, Thursdays, Fridays and Saturdays during January,

and thereafter Mondays and Saturdays only.

In the reverse direction the 10 a.m. train from Cape Town at present departing on Sundays, Tuesdays and Fridays will leave daily except Mondays and Thursdays up to January 30, and thereafter revert to the present departure days. The evening train at present departing at 8 p.m. on Mondays, Wednesdays, Thursdays, and Saturdays will also depart on Fridays until the end of January when the Friday service will again be cancelled.

The Johannesburg-Cape Town via Bloemfontein service will be augmented by an additional train to run on Satur-

days from Johannesburg until January 29, 1955, when it will be withdrawn; from Cape Town an additional service will be introduced on Fridays until January 28, when it also will be withdrawn. These services are intended to cater for the seasonal rush to and from the Cape.

During the period December 5, 1954-January 30, 1955, a train will leave Cape Town at 7 p.m. on Sundays and arrive at Bulawayo at 8 a.m. on Wednesdays; from Bulawayo an additional train will depart at 10.15 a.m. on Wednesdays during the period December 8, 1954, to February 2, 1955, to reach Cape Town at 12.5 p.m. on Fridays.

Antofagasta (Chili) & Bolivia Railway

Mr. H. C. Drayton's statement

The sixty-sixth annual general meeting of the Antofagasta (Chili) & Bolivia Railway Co. Ltd. was held on November 23 in London. Mr. H. C. Drayton, Chairman, presiding.

The following is an extract from his circulated statement for the year 1953:—

The net receipts from the operation of the railways for 1953, after deducting losses from the operation of the lines of the Bolivia Railway Company and of the Aguas Blancas Railway, amounted to £592,530. After adding other income and the balance brought forward from 1952, and deducting fixed charges and the appropriations detailed in the net revenue account, the balance to the credit of the account at December 31, 1953, was £440,303, which it is proposed to carry forward. The appropriations include the payment of arrears of dividend (less income tax) for the years 1946 and 1947 on the 5 per cent cumulative preference stock.

During the year under review, public goods traffic decreased by 127,993 tons to 1,287,516 tons, a reduction of 9 per cent. The principal decreases were in articles for the mining industry, general merchandise, Chilean products, inflammables and explosives and petroleum for Bolivian clients. In down traffic, there were reductions in copper bars and copper ores and in low-grade ores and tin slag from Bolivia.

Passenger Traffic

The total number of passengers carried decreased by some 17 per cent from 1,077,517 in 1952 to 891,685 in 1953. The number of first class passages was lower in both Chile and Bolivia. There was also an appreciable decline in second class passenger journeys in Chile, because of the cessation of the special workmen's service over the short haul between Calama and Chuquicamata. On the other hand, second class passenger traffic in Bolivia continued to increase. There was a decrease in excess luggage and parcels traffic.

The operation of the waterworks undertaking, with Chilean currency converted at \$354 Ch. to the £, resulted in a loss of £41,061, compared with £35,246 in 1952. The Chilean Government is now taking steps to improve the supply of water to the city of Antofagasta and it is hoped that this may eventually provide an opportunity for eliminating the annual loss which the company suffers on this account.

Tariff Increases

I referred in my last Statement to the 11 per cent increase in tariffs granted by the Chilean Government with effect from April 24, 1953. Since then, two further tariff increases have been granted, namely,

of 10 per cent from November 25, 1953, and 35 per cent from May 10, 1954, these increases being necessary to compensate for continued increased costs of wages, salaries, materials, and so on.

I also informed you that, from June 12, 1953, the Bolivian Government authorised an increase of 115 per cent on all tariffs, except minerals and metals, as compensation to the company for the losses which it suffered from exchange devaluation and for increased expenditure on salaries, wages and social benefits. In April, 1954, the company was obliged to meet further substantial demands for increased salaries, wages and social benefits. On this occasion, the Bolivian Government decided that, instead of compensating us by authorising another large tariffs increase, it would itself respond for the specific additional cost.

The report was adopted.

Questions in Parliament

Railway Electrification Schemes

Mr. Ernest Davies (Enfield E.—Lab.) asked the Minister of Transport & Civil Aviation on November 17 what schemes of railway electrification were at present being undertaken; and what were being planned in detail for commencement shortly.

Mr. John Boyd-Carpenter: The electrification of the Shenfield-Chelmsford and the Shenfield-Southend lines and the extension of the Manchester-Sheffield electrification scheme to Rotherwood is proceeding. Detailed planning for electrification of the London-Tilbury line is in hand and some preliminary engineering works have been started. The B.T.C. hopes to present a plan for re-equipment and modernisation of British Railways, including further electrification schemes, before the year ends.

Mr. Davies asked where the electrification of the Liverpool Street to Enfield line stood in regard to priorities.

Mr. Boyd-Carpenter said it would be very difficult for him to comment on that shortly before the main scheme was presented to him.

Colonel Alan Gomme-Duncan (Perth & Perth E.—C.) asked the Minister to bear in mind that there was not a single yard of overground electric railway in Scotland, and that Scotland had a vast potential source of electricity. He asked whether Scotland would get a turn in the list of priorities soon.

Mr. Boyd-Carpenter replied that he was awaiting B.T.C. plans.

Staff & Labour Matters

Railway Staff National Tribunal Award

As we went to press last week the award of the Railway Staff National Tribunal on the claims made by the A.S.L.E.F. and N.U.R. for improved rates of pay for railway footplate staff had just been announced. Brief details were given in our last issue.

The award summarises the main arguments of the two unions in support of their claims as:—

(1) Current rates of pay do not provide adequate remuneration for the staff in the grades covered by the claims having regard to their skill, the responsible nature of the services they render and the conditions under which their duties are performed.

(2) The increases now claimed represent the minimum essential to restore a justifiable measure of relativity within the railway wage structure.

(3) Current rates of pay are not sufficient to attract and retain the right type of staff.

(4) Increased efficiency resulting from work being undertaken by considerably reduced staff should be recognised.

The Commission's counter arguments were:—

(1) With the increased rates of pay which the Commission have offered the

week to 8s. 6d. to railway conciliation grades (other than footplate staff), leaders of the N.U.R. met representatives of the Commission on November 18 to explain their reasons.

They put their case for a review of the pay increases which they had accepted. The meeting was adjourned and a further meeting had been arranged earlier this week.

Demands for Strike Action

Meanwhile demands for official strike action to enforce the union demands were made at a meeting of representatives of the executives of the Manchester and North-West district councils of the N.U.R. representing 32,000 members. A resolution is to be submitted to full meetings of the councils pledging support to the N.U.R. in repudiating the recent agreement on wages for conciliation grades other than footplate staff and calling on the national executive to take strike action failing satisfaction on the issue.

London Transport Staff

Claims for a revision of the wage structure of some 18,000 employees on London Transport railways were to be discussed on Thursday by representatives of the London Transport Executive and the railway unions.

Grade	Present rate	Tribunal award	Increase	B.T.C. proposals to unions
Engine cleaner	s. d.	s. d.	s. d.	s. d.
...	124 6	127 0 (a) 129 0 (b)	2 6 4 6	125 0 (a) 127 0 (b)
Fireman:				
1st year	133 6	138 6	5 0	137 0
2nd "	135 6	148 6	13 0	140 0
3rd "	139 0	158 6	19 6	143 0
4th "	142 6	(max.)	16 0	147 0
5th "	147 6		11 0	152 0
6th "	151 6		7 0	156 0
Driver & motorman:				
1st year	159 6	172 6	13 0	164 0
2nd "	162 0	182 6	20 6	168 0
3rd "	166 6	192 6	26 0	172 0
4th "	170 0	(max.)	22 6	176 0
5th "	173 6		19 0	180 0
6th "	178 6		14 0	185 0

(a) 1st year
(b) 2nd year

staff covered by the claims would be adequately remunerated for their skill, responsibility and the conditions under which railway work is undertaken.

(2) The increased rates of pay proposed by the Commission for the staff covered by the claims would give a proper relationship with the rates of pay of other staff in the railway industry.

(3) The need for recruiting and retaining staff of the appropriate standard is recognised and is, in fact, being generally met.

(4) The effect of increased efficiency and economy, where they have been secured, is reflected in the present rates of pay.

The Tribunal, after considering the statements and submissions of the parties concerned found that the rates of pay for the principal grades covered by the claims should be increased as shown in the accompanying table.

On November 18 the A.S.L.E.F. executive announced that it had accepted the Tribunal award and that it had decided to seek an early meeting with the Commission to discuss the implementation of the award. Neither the N.U.R. nor the Commission has yet signified acceptance of the award.

N.U.R. Repudiation of Wage Agreement

After the repudiation of the wage agreement operative from October 4 which accorded increases ranging from 6d. a

A delegate conference representing 58,000 London busmen decided on November 19 to instruct their representatives to ask London Transport for an increase of 25s. on their basic rates of pay for inside staff as well as drivers and conductors, with a levelling up of differential payments.

AUTOMATIC LEFT LUGGAGE LOCKERS AT READING.—British Railways, Western Region, have installed automatic left luggage lockers at Reading General Station, which were brought into use on November 15. A block of eight lockers is available; each locker is 18 in. high, 16½ in. wide and 29 in. deep, and can accommodate a medium-size suitcase with some smaller articles. The lockers are operated by the insertion of a sixpence to release the key which, after the parcels etc., are enclosed, may be retained in the user's possession for 24 hr. Should the articles not be removed at the end of this period they will be taken to the Left Luggage Office and an excess charge made for recovery. Similar lockers have been in use for some time at principal British Railways stations including the London termini, and at Birmingham, Cardiff, and Bristol.

Contracts & Tenders

British Railways, Western Region, have placed the following contracts:—

British Insulated Callender's Construction Co. Ltd., London: installation of cable in lieu of overhead pole route through stations and over viaducts between Par and Lostwithiel, between Myrtle Hill Junction and Carmarthen, and between Severn Bridge Junction and Sutton Bridge Junction, Shrewsbury

Richards Foundries Limited, Leicester: supply of one five-ton steam crane for the Civil Engineer's Department, Taunton

Abtus Limited, London, S.W.1: supply of 107 sets of Abtus patented measured packing equipment

W. H. Streeter Limited, Hampton: re-railing and carrying out alterations to engine pits at Old Oak Common Motive Power Depot

British Railways, London Midland Region, have placed the following contracts:—

Thos. Wrigley Limited, Prestwich: reconstruction of the parapet and spandrel walls of bridge No. 7, Smadley Viaduct, Manchester loop line

John Laing & Son Ltd., Carlisle: renewal of roof coverings, stripping and general repairs at the wagon repair shops, Carlisle Currock

Leonard Fairclough Limited, Adlington: Clay Cross (Avenue) exchange sidings for N.C.B. new coke ovens plant

Robert M. Douglas (Contractors) Limited, Birmingham, 23: private sidings facilities, earthworks, drainage, fencing and gates at Perry Bar for S.P.D. Ltd., new railhead depot

Leamore Construction Co. Ltd., Walsall: renewal of eleven platelayers cabins in the Walsall Engineer's district

British Railways, Southern Region, have placed the following contracts:—

Ground Explorations Limited, London, W.5: soil survey, Medina Wharf, Croydon

Le Grand, Sutcliffe & Gell Limited, Southall: test borings for reconstruction of quay, Folkestone Harbour

Kaymat Limited, Horsham: resurfacing of platforms, Three Bridges Station

Henry Hope & Sons Ltd., Birmingham: supply and fixing of metal windows, Nine Elms "A" signalbox

Winter & King, London, S.W.20: repairs to engine shed, Reading South

Duke & Ockenden Limited, Littlehampton: sinking of borehole for water supply, Tunbridge Wells West Motive Power Depot

W. R. Payne & Sons, Shipley: renovations, Battle Station

The Cementation Co. Ltd., London, S.W.1: Gunite treatment of concrete, Elizabeth Bridge, Victoria Station

C. & T. Painters Limited, London, N.W.10: renovations, Crystal Palace (Low Level) Station

British Railways, Eastern Region, have placed the undermentioned contracts:—

Brightside Foundry & Engineering Co. Ltd., Sheffield: supply, delivery and erection of boiler plant, boiler house steelwork, heating system, steam distribution system and compressed air mains at Temple Mills Wagon Works

S. H. Heywood & Co. Ltd., Manchester, 3: supply, delivery and erection of electrical installation at Rotherwood Sidings, Sheffield

A contract has been signed between the Central Railway of Brazil and the Société Gregg d'Europe for the supply of 535 wagons to transport ore from the sources of production to the National Steel Mills at Volta Redonda, as well as ore for export. The wagons, of 75 tons capacity, will be manufactured in Belgium and

shipped knocked down to the Fabrica Nacional de Estructuras Metalicas Edimetal S.A., at Barra Mansa, where they will be assembled at the rate of six to eight wagons a day. Delivery is to begin in six months' time. It is understood that the financing of this operation will be undertaken by the National Bank of Economic Development in conjunction with the World Bank under a project of the former Brazil-U.S. Joint Commission.

Maybach Motorenbau G.m.b.H., of Friedrichshafen, has received an order from the German Federal Railway for 250 diesel engines of 650 b.h.p., of the so-called "tunnel" type, for installation in six-wheel shunting locomotives; and J. M. Voith G.m.b.H., of Heidenheim, has received a corresponding order for 250 sets of hydraulic transmission. The mechanical portions of these locomotives are to be divided between six or seven German locomotive builders in proportions not yet finalised, but the Krauss-Maffei works has under construction three prototype locomotives. The complete construction programme involves 300 diesel shunting locomotives, of which 270 to 275 are to be of the above type, and the remaining 25 of two or three different types of entirely new designs.

The High Commissioner for India is inviting tenders for boiler and firebox plates. See Official Notices on page 616.

According to the Special Register Information Service, Export Services Branch, Board of Trade, delivery dates for some items in the Indian Railways Foreign Procurement Programme of Rolling Stock, 1955-56, have been postponed as follows:—

Item 1 on list F.P/5-B (electric locomotives for Calcutta)—delivery should now be completed by April 1, 1957 instead of August 1, 1956; for Items 9(a) and 9(b) (e.m.u. stock for Calcutta)—deliveries should now commence in December, 1956, and be completed by April 1, 1957.

The Special Register Information Service, Export Services Branch, Board of Trade, reports a call by the South Australian Railways, for 29 traction-type hydraulic torque converters with heat exchangers and control and operating equipment for diesel-powered railcars, 5 ft. 3 in. gauge. Tenders should reach the Railway Commissioner, Adelaide, by noon on December 2. The documents are not available in the Branch.

The Special Register Information Service, Export Services Branch, Board of Trade, reports the following call for tenders for rolling stock for Greece:—

- (i) 500 covered wagons, maximum gross weight 40 tons, tare 13 tons approximately
- (ii) 20 with 75/85 seats, first and second class railcars
- (iii) Spares for (ii) and material for their general maintenance
- (iv) Ten trailers for railcars, capable of being used as passenger coaches on steam trains; 80/85 first and third class seats or third class only
- (v) 8/10 diesel locomotives for shunting, 500-550 h.p., with hydraulic transmission.

Tenders should be addressed: Ministère des Communications, Direction Générale des Transports, Rue Nikiforou 16 (3me Etage), Athènes, by November 30.

A copy of the tender documents (in

French), including specifications and conditions, is available on loan to United Kingdom firms on application to the Branch (Lacon House, Theobalds Road, W.C.1).

The Special Register Information Service, Export Services Branch, Board of Trade, reports a call by the Comptroller of Stores, Victorian Railways, for 40 goods and passenger vans.

The principal dimensions are:—

Length over body	39 ft.
Length over pulling faces of couplers (approximately) ..	41 ft. 11½ in.
Distance centre to centre of bogies	27 ft.
Bogie wheelbase (approximately)	6 ft.
Height from top of rail to top of roof at centre (unloaded) ..	13 ft. 5 in.
Height from top of rail to top of floor (unloaded) ..	4 ft. 1 in.
Height from top of floor to top of doorway opening ..	6 ft.
Height from top of rail to centre line of coupler (unloaded)	2 ft. 11 in.
Width over body	9 ft. 3 in.
Width overall (for grab rails, etc.)	9 ft. 9 in.
Diameter of wheels	3 ft. 0½ in.
Goods load capacity	10 tons

Tenders should reach the Comptroller of Stores, Victorian Railways, Room 191, Railway Administrative Office, Melbourne, by January 5.

A copy of the tender documents, including specifications and conditions of tenders, is available for loan to United Kingdom firms in order of receipt of application to the Branch, Lacon House, Theobalds Road, W.C.1. Additional copies of the specification and contract can be obtained from the Agent General for Victoria, Melbourne Place, Strand, London, W.C.2, at a cost of £5 a set.

WITHDRAWN SERVICES IN SCOTTISH REGION.—The Scottish Region announces that on and from December 6, the passenger service will be withdrawn from Cassillis and Dalrymple Stations between Ayr and Girvan, and from Moffat Station (Beattock-Moffat branch).

SOCIETY OF NON-DESTRUCTIVE INSPECTION.—In view of the increasing application of non-destructive testing in all branches of the engineering industries, a Society of Non-Destructive Inspection has been formed in Great Britain to assist persons responsible for the use of non-destructive examination methods. The main object of S.O.N.D.I. is the free interchange of information and experience between those concerned with the development, control, and use of non-destructive testing equipment and techniques, and the promotion of radiographic, ultrasonic, magnetic, acoustic and other methods of non-destructive inspection. Its membership has been drawn from a wide range of engineering industries such as aircraft, atomic energy, electrical, shipbuilding and transport, and so on. Close co-operation with research associations, professional institutions and other organisations concerned with different aspects of non-destructive inspection is being established. The headquarters of the society are at Duncan House, Dolphin Square, London, S.W.1.

Notes and News

Vacancy for Executive Assistant.—London Transport require an executive assistant for design of mechanical handling equipment for railway permanent way maintenance, renewal and construction works. See Official Notices on page 616.

Locomotive Maintenance Inspector Required.—Applications are invited for the post of locomotive maintenance inspector required by the Nigerian Railway for one tour of 12 to 24 months in the first instance. See Official Notices on page 616.

Road Haulage Disposals: Scottish List.—The British Transport Commission has announced that, in accordance with the note printed in the Special Scottish list of Transport Units and with the approval of the Road Haulage Disposal Board, transport units Nos. 66/4508 (Dumfries) and 66/4510 (Kilmarnock) have been withdrawn.

Air Freight and Vehicle Services to Ulster.—Silver City Airways is reported to have applied to the Air Transport Advisory Council for permission to work a daily all-freight service between Blackbushe Airport and Newtonards, Co. Down, with stops at Birmingham and Wood Vale, Lancashire. The company also is stated to be seeking permission to carry cars between Wood Vale and Belfast. An additional application by Silver City Airways is to operate vehicle and passenger ferry services daily between West Freugh, near Stranraer, and Newtonards.

Renovation Work at Chester General Station.—Work was due to begin on November 22 on the first stage of the £160,000 renovation scheme at Chester General Station, London Midland Region. The first stage is the stripping and replacement of the roof over platforms 9 to 14. The contractors are the Demolition & Construction Company, W. G. Kaleyard Limited of Chester, and Westons (Manchester) Limited. Later, the roofing over the other platforms will be dealt with. Lighting will be converted from gas to electric, and colour light signalling and track circuiting will be installed. Other plans for Chester General envisage a combined cafeteria and waiting room and improved station buildings.

Midweek Overnight Reduced Fare Bookings from Kings Cross to N.E. Coast.—The midweek overnight tickets at reduced fares, introduced earlier this year, have proved very popular. For the approaching holiday period the Eastern Region is introducing an advanced booking arrangement which will help prevent overcrowding of trains and add to the comfort of passengers using overnight tickets. From December 7 to January 6, inclusive, midweek overnight bookings to Bishop Auckland, Darlington, Durham, Middlesbrough, Newcastle, South Shields, Stockton, Sunderland, and West Hartlepool, must be made 36 hr. in advance at Kings Cross and Liverpool Street Main-Line Booking Offices, and at British Railways Travel Centre, Lower Regent Street, London, S.W.1, or 48 hr. in advance at other stations and ticket agencies. Passengers will be required to specify the date of both outward and return journey and tickets issued will be valid for use only on those days. At least two days notice should be given by passengers who

intend travelling during the period immediately preceding, during or following the Christmas and New Year Holidays.

International Packaging Exhibition, 1955.—At the International Packaging Exhibition, to be held at Olympia, London, from January 18 to 28, 1955, there will be many developments in traditional and modern materials as well as many new features. This will be the fourth International Packaging Exhibition to be held in London and will be the largest and most comprehensive.

Awards to British Railways Cartage Vehicle Drivers in Dublin.—The Lord Mayor of Dublin, Alderman A. Byrne, recently presented prizes at a vehicle parade by British Railways to seven drivers for the best kept vehicles at the Dublin North Wall Depot. At the ceremony Mr. G. B. Gray, General Agent for British Railways in Ireland, said that this year the practice of awarding prizes had been extended to Ireland for the first time. The outstanding seven vehicles were finally examined at the parade by Mr. A. T. Payne, District Road Motor Engineer, Manchester. Mr. F. W. Moxon, Assistant (Cartage) to the Commercial Superintendent, London Midland Region, stated that British Railways had mechanised in Dublin because of a duty to trade, commerce, and the public. Those present included:—

Messrs. P. Lemass, General Manager, and D. Stewart, Traffic Manager, Coras Iompair Eireann; P. Bogle, representing Mr. J. F. McCormick, General Manager, Great Northern Railway Board; H. Bowie, Road Motor Engineer's Department, Great Northern Railway Board; and F. S. Veltom, formerly Irish Traffic Manager, Great Western Railway.

"Nakuru of the Future" Model.—The accompanying illustration shows (left to right) Messrs. W. H. Sayer, Mayor of Nakuru, Kenya, K. M. Louis, Town Clerk of Nakuru, and M. H. Archer, Public Relations Officer, East African Railways & Harbours, and Mrs. Sayer, looking at a model showing the future appearance of Nakuru when the railway and town remodelling schemes have been carried

out. This model formed part of the East African Railways & Harbours exhibit at Nakuru described on page 609 of this issue.

Institute of Transport: Henry Spurrier Memorial Lecture.—The Henry Spurrier Memorial Lecture, "Road Haulage—a re-appraisal," by Mr. G. W. Quick Smith, will be given at the Institute of Transport on Monday, December 13, in the Jarvis Hall, 66, Portland Place, London, W.1, at 5.45 p.m.

George Cohen Sons & Co. Ltd.—The directors of George Cohen Sons & Co. Ltd. announce that in connection with the offer to ordinary and preference stockholders of the company, of £1,000,000 4½ per cent unsecured loan stock 1965-70 at £97 per cent, applications have been received for some £33,000,000 of stock. Every applicant has received an allotment and preference has been given to smaller applications as far as possible. Allotment Letters were posted on October 22.

Helicopter Fares.—Writing in the *B.E.A. Magazine*, Mr. Peter Masefield, Chief Executive of British European Airways, says that up to 1958 helicopters will have no significant influence on the total of air traffic. It is possible that by that time B.E.A. will be running a few low-frequency, high-fare helicopter services on such routes as London-Brussels and London-Birmingham. Even by the 1960s, he says, the developed helicopter is likely to demand fares between two and four times the first class railway fare. The fare for the experimental helicopter service between London Airport and the South Bank, which commences in March next, has been announced as 30s. for the single journey.

Tube Investments Limited.—In his circulated statement to shareholders, Sir Ivan A. R. Stedeford, Chairman of Tube Investments Limited, says that for over two years a defensive action was waged in which margins were assailed by falling orders, rising costs, and mounting competition. The high level of capital expenditure, including £5,800,000 for the Round Oak

Steel Works and £4,000,000 for the re-equipment and expansion of works, has caused a fall in liquidity, cash holdings being down to under £57,000 from £4,100,000 and a bank overdraft of £707,000 having appeared in the accounts. Sir Ivan Stedeford does not think that additional permanent cash will be needed in the near future. He reports increased trade in some of the major activities of the group and looks to the current year with confidence. The final dividend of 10 per cent which is recommended, with the interim already paid, makes a total of 17½ per cent for the year. The total dividend in the previous year was 15 per cent.

German Diesel Trains.—The standard "VT.08" class of express diesel hydraulic trains of the German Federal Railway, described in our issue of October 22, have FAG cylindrical roller-bearing axleboxes, supplied by Kukelfischer Georg Schäfer, of Schweinfurt, on all driving axles.

Waveney Valley Branch Light Railway Order.—The Minister of Transport & Civil Aviation has made a Light Railway Order in respect of the Waveney Valley branch of the Eastern Region, between Tivetshall and Beccles. This section was closed to passenger traffic on January 3, 1953, but has remained open for freight. The Order was due to come into operation on November 15.

Railway Benevolent Institution.—At its meeting on November 17, the board of the Institution granted annuities to four members involving an additional liability of some £45 per annum. Fifty gratuities also were granted, amounting to £425 to meet cases of immediate necessity. Grants made from the Casualty Fund during the month of October amounted to £608.

Samuel Fox & Co. Ltd. New Electric Arc Furnace.—Samuel Fox & Co. Ltd., of Stocksbridge, Sheffield, associated with the United Steel Companies Limited, put into service earlier this month what is claimed to be the largest electric arc furnace in Western Europe; the ceremony was performed by Mr. Gerald Steel, Managing Director of United Steels. The furnace has an inside dia. of 19 ft., with an 18-in. thick refractory lining, and the roof, which is 14-in. thick, weighs some 30 tons. The furnace will be employed in the manufacture of special steels, and is expected to produce approximately 1,200 ingot tons a week. The installation of the furnace has entailed the laying down of some three miles of track, with a new scrap yard over 1,000 ft. long.

John I. Thornycroft & Company Results.—The ordinary dividend declared by John I. Thornycroft & Company for the year ended July 31, 1954, is maintained at 15 per cent on the capital doubled to £1,200,000 by an issue of shares for cash. The final payment is 10 per cent. The consolidated trading balance of £855,375 compares with £606,773 for the previous year, and includes profits of £210,000 (£75,000) on contracts substantially completed before August 1, 1953. Depreciation charged was £142,184 (£136,505). Taxation amounted to £431,414 (£347,376), leaving net profits of £423,961 (£259,397). Credit for tax no longer required of £43,105 (£511,319) is taken. General reserve of subsidiaries is allotted £256,542 (nil), and dividends, with additional profits tax, take £160,875 (£93,375).



Examining the model of the replanned town and railway installations at Nakuru

General reserve receives £484,013 (£84,671 plus E.P.T. postwar refunds of £215,329). Overseas exchange reserve, which received £100,000 last year, receives nothing. The balance carried forward is £309,501 (£743,865). The directors propose, subject to C.I.C. consent, to issue one fully paid ordinary £1 share for every four held by shareholders registered on the date of the passing of the necessary resolution at an extraordinary meeting.

Silentbloc Move to Crawley.—Silentbloc Limited, manufacturers of flexible bearings and anti-vibration devices, are vacating their premises in the Notting Hill Gate district of London for a new factory at Crawley. After December 20 all correspondence should be addressed to Manor Royal, Crawley, Sussex.

Abergavenny-Merthyr Line Closed to Freight Traffic.—The section of the Western Region between Abergavenny and Merthyr has been closed to freight traffic. The estimated annual saving is about £50,000. Goods will be carried between the two towns via Pontypool or Newport.

Robert Hudson Limited Results.—Group current assets of Robert Hudson Limited at June 30, 1954, were £2,546,826, compared with £2,354,517 at the close of the previous year. This included stock £977,971 (£1,193,024), tax certificates £350,000 (nil), cash £381,780 (£489,980). Current liabilities were £657,254 (£562,802).

Nationalised Transport at the Hull Civic & Trades Exhibition.—The stand shown in the accompanying illustration was that of the British Transport Commission at the recent Civic & Trades Exhibition, Hull. It was constructed by A. & A. Displays Limited to the requirements of the Public Relations & Publicity Officer, British Railways, North Eastern Region. All types of literature were displayed. The major colour scheme was in crimson and white. The British Railways portion featured container service by means of double-sided panels containing enlarged photographs of

various types of container. Scale models of five types of container were on exhibition. The British Road Services part of the display showed national and Hull local organisations and photographs of vehicles and activities. The Docks section consisted of a scale model of a crane electrically operated and traversing a length of rail; it also included photographs of dock and canal activities and statistical data in display form.

Oldham Mumps Station to be Rebuilt.—The London Midland Region is to begin work early next Spring on the reconstruction of Oldham Mumps Station. The new station will have a steel frame with steel roof decking. The street frontage will be of brick with extra large windows in the ticket hall, ticket office and parcels office. Electric lighting will be installed throughout.

New Warerite Patterns.—New patterns have been added to the standard range of Warerite laminated plastics, which includes a new check pattern in pink, blue or green stripes on a white background. A new striped pattern, which has also been introduced, is similar to the check but without the cross lines. A new raindrop pattern is also available in red, light blue, dark blue, light grey, dark grey, and green.

Clean and Tidy Stations in the N.E. Region.—The results of the annual "clean and tidy stations" competition in the North Eastern Region show that 273 stations have been awarded prizes and certificates during 1954. Twelve stations—Blaydon, Brotton, Cloughton, Ferriby, Fyling Hall, Gristhorpe, Manors (Newcastle), Middleton-in-Teesdale, Morpeth, Ormesby, Pelaw, and Whitby Town—obtained first class awards. Of the remainder, 37 obtained second class prizes, 127 third class prizes, and 97 stations received certificates of commendation.

Road Haulage Sales.—The Road Haulage Disposal Board and the British Transport Commission have announced the results of tendering for units in List R.4, adver-

tised on September 8. As at November 11, tenders for 16 units with premises (249 vehicles) had been accepted, and all tenders for eight units (162 vehicles) rejected. No bids were received for one unit (44 vehicles). For vehicle-only units, tenders were accepted in 94 instances, involving 315 vehicles. All tenders for 29 units (114 vehicles) were rejected. Tenders for two contract hire units (42 vehicles) were accepted, and all tenders for one unit (3 vehicles) were rejected.

Forthcoming Meetings

Until end of year.—"Popular Carriage" Exhibition (Two centuries of carriage design for road and rail) in the Shareholders' Meeting Room, Euston Station, London, N.W.1. Weekdays 10 a.m. to 7 p.m.; Sundays 2 to 7 p.m.

November 26 (Fri).—The Railway Club, Annual Dinner, at the Danish Club, Knightsbridge, London, S.W.1, at 7 for 7.30 p.m.

November 30 (Tue).—Institute of Transport, Northern Section, at the County Hotel, Newcastle, at 7.30 p.m. Annual dinner and visit of Mr. C. K. Bird, Vice-President.

December 1 (Wed).—Railway Students' Association, at the London Transport (South Kensington) Club, Pelham Street, S.W.7, at 6.15 for 7 p.m., annual dinner and dance.

December 2 (Thu).—British Railways, Southern Region, London Lecture & Debating Society, in the Headquarters Staff Dining Club, Bishop's Bridge Road, Paddington, W.2, at 5.45 p.m. Joint debate with the Western Region, London Lecture & Debating Society. "Were the 'good old days' on the railways as good as their modern counterparts."

December 2 (Thu).—Institution of Electrical Engineers, at Savoy Place, London, W.C.2, at 5.30 p.m. Paper on "The electrification of the Manchester-Sheffield-Wath Lines," British Railways, Eastern and London Midland Regions, by Mr. J. A. Broughall and Mr. K. J. Cook.

December 3 (Fri).—Institution of Mechanical Engineers, Southern Branch, Graduates' Section, at The Polygon Hotel, Southampton, at 7 p.m. Lecture on "The development and design of the 4-4-0 type locomotive," by Mr. E. B. Trotter.

December 3 (Fri).—The Railway Club, at 87, Fetter Lane, London, E.C.4, at 7 p.m. Paper on "The railways of Manchester and district," by Mr. M. D. Greville.

December 3 (Fri).—Institute of General Managers, at the Savoy Hotel, London; first annual dinner.

December 4 (Sat).—Stephenson Locomotive Society, Sheffield Centre, at the Y.M.C.A., Fargate, at 6.30 p.m. Talk on "The terminal stations of London," by Mr. H. Chase.

December 6 (Mon).—Society of Engineers, in the apartments of the Geological Society, Burlington House, London, W.1, at 5.30 p.m. Paper entitled "Aluminium as a bridge material," by Mr. Cedric Marsh.

December 6 (Mon).—Institute of Transport, Metropolitan Section, at 80, Portland Place, London, W.1, at 6 p.m. Annual general meeting followed by paper on "Express coach services in Great Britain and on the Continent," by Mr. R. G. James.



The B.T.C. stand at the Civic & Trades Exhibition, Hull

December 8 (Wed.).—Institution of Rail-way Signal Engineers, at the Railway Institute, York, at 5.30 p.m. Paper on "Cable manufacture," by B. I. & C. Cable Company.

December 8 (Wed.).—Institution of Locomotive Engineers, at the Institution of Mechanical Engineers, 1, Birdcage Walk, London, S.W.1, at 5.30 p.m. Paper entitled "Materials used in locomotive, carriage and wagon construction," by Mr. A. Turner.

December 8 (Wed.).—Railway Students' Association, at the London School of Economics and Political Science, Houghton Street, London, W.C.2, at 6.15 p.m. Paper on "Development of forms of motive power," by Mr. R. F. Harvey.

December 9 (Thu.).—Institution of Electrical Engineers, at Savoy Place, London, W.C.2, at 5.30 p.m. Paper on "A brushless variable-speed induction motor," by Professor F. C. Williams and Mr. E. R. Raithwaite.

December 10 (Fri.).—Institution of Rail-way Signal Engineers, at the Institution of Electrical Engineers, Victoria Embankment, W.C.2, at 6 p.m. Paper on "Loudspeakers in marshalling yards," by Mr. B. W. Flexman.

December 11 (Sat.).—Permanent Way Institution, East Anglia Section, at Ipswich, at 2.15 p.m. Discussion on length marking.

December 11 (Sat.).—Stephenson Locomotive Society, at the Grand Hotel, Bristol, at 7.30 p.m. Special Meeting to establish new centre for the area, followed by Mr. W. Camwell's ciné film on "Railway scenes throughout the British Isles."

OFFICIAL NOTICES

The engagement of persons answering Situations Vacant advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is excepted from the provisions of the Notification of Vacancies Order, 1952.

TRAFFIC ASSISTANT required for Guaqui La Paz Railway (Bolivia). Qualifications required: previous training in Railway Traffic Department or Transportation Company. Active and of first-class health. Age 25/35 years. Preferably single. Knowledge of Spanish most desirable or willingness to learn within six months. Future prospects for right man willing to take opportunities.—Apply Secretary, Peruvian Corporation Limited, 144 Leadenhall Street, London, E.C.3.

TRACTION SALES ENGINEER required for Company manufacturing Diesel Electric Locomotives. Must be capable of discussing traction problems with railway engineers. Salary will be in accordance with capabilities and experience and the post carries the advantage of entry into a Staff Assurance Scheme which is at present non-contributory.—Applicants, who must be willing to go overseas, should write giving age and full details of experience to Box 424, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

MERZ and McLellan, Consulting Engineers, invite applications from electrical engineers with experience of Railway Electrification overhead line work. Applicants should hold an engineering degree or have undergone a student or apprenticeship course on a railway or with one of the major contractors. They should have obtained practical experience of erection of railway overhead line structures and equipment. Salary according to age, qualifications and experience. Staff pension scheme. Apply stating age, education, training qualifications and institution membership to Merz and McLellan, Millburn, Esher, Surrey.

LONDON TRANSPORT require EXECUTIVE ASSISTANT for design of mechanical handling equipment for railway permanent way maintenance, renewal and construction works. Applicants must have sound experience of mechanical and electrical design and drawing office experience. Qualifications: Higher National Certificate, member or qualifying for membership of professional institution. Salary

range £815 to £865, prospects of advancement to £940. Medical exam.; contributory superannuation scheme after probation. Applications to Staff Officer (F/EV.512), London Transport, 55, Broadway, S.W.1. For acknowledgement enclose addressed envelope.

LOCOMOTIVE MAINTENANCE INSPECTOR required by the NIGERIAN GOVERNMENT RAILWAY for one tour of 12/24 months in the first instance. Salary scale (including expatriation pay) £1,434 rising to £1,560 a year. Gratuity at the rate of £150 a year. Outfit allowance £60. Free passages for officers and wives, and assistance towards cost of children's passages or grant of up to £150 leave annually for their maintenance in U.K. Liberal leave on full salary. Candidates must have served a 5-year railway apprenticeship followed by at least 10 years' running shed experience. Write to the Crown Agents, 4, Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M2C/30225/RA.

THE Proprietors of Patent No. 660849 for "Improvements in or relating to Brake Beams" desire to secure commercial exploitation by Licence or otherwise in the United Kingdom. Replies to Haselstine, Lake & Co., 28, Southampton Buildings, Chancery Lane, London, W.C.2.

THE Proprietors of Patent No. 660855 for "Railway Car Truck Side Frames" desire to secure commercial exploitation by Licence or otherwise in the United Kingdom. Replies to Haselstine, Lake & Co., 28, Southampton Buildings, Chancery Lane, London, W.C.2.

RAILWAY MATERIAL. Plain Sleepers, Chaired Sleepers. Rails of all Sections. Crossing Timbers. We undertake the supply and laying of all classes of siding installations.—The Railroad Plant Supplies Co. Ltd., 13 Waterloo Road, Wolverhampton. Telephone No. Wolverhampton 23617.

THE High Commissioner for India invites tenders for the supply of:—432 Plates Steel for inside Firebox, plain and unflanged. 1,008 Plates Boiler Plates, plain and unflanged. Forms of tender may be obtained from the Director, General India Steel Department, 32/44, Edgware Road, London, W.2, on or after 26th November, 1954, at a fee of 10s. which is not returnable. If payment is made by cheque, it should please be made payable to "High Commissioner for India." Tenders are to be delivered by 2 p.m. on Friday, 7th January, 1955. Please quote reference No. 286/54/DH/RLY.3.

PIER MINIATURE RAILWAY.—The Southport Corporation are considering the disposal of a Miniature Railway unit, consisting of one locomotive and tender, five closed coaches and ten open coaches, with a maximum seating capacity of 180. This has recently been in operation, and is in good order. The gauge of the track is 24 in. and the locomotive is a standard Hudson Hunslet 3½-ton, 20-h.p., 2-speed type, fitted with an Ailsa-Craige R.F.2 Commercial Diesel engine. The unit can be viewed at the Southport Pier by arrangement with the General Manager, Publicity & Attractions Department, Town Hall. Offers in writing should be forwarded to the Town Clerk, Town Hall, Southport, by 31st December, 1954.

BOUND VOLUMES.—We can arrange for readers' copies to be bound in full cloth at a charge of 25s. per volume, post free. Send your copies to the SUBSCRIPTION DEPARTMENT, Tothill Press, Limited, 33, Tothill Street, London, S.W.1.

Railway Stock Market

More cheerful and active conditions have ruled in stock markets. The latest of the de-nationalised steel share offers have been most successful. Total applications for the 15,000,000 Dorman Long shares offered at 22s. 6d. each was nearly £85,000,000. This very heavy oversubscription meant that allotments had to be cut down drastically. The success is a good preparation for the next offer of steel shares which may be in Colvilles. The prevailing view is that the next issue of steel shares will be at a price showing a yield of 7 per cent, compared with that of nearly 7½ per cent on Dorman Long.

There have been some mixed movements in industrial shares this week, though small gains predominated. Shares of locomotive builders held recent gains quite well and were more active. In general it is realised that there is probably little scope for higher dividends in respect of the current year. In most cases, however, yields are quite attractive at current prices on the basis of dividends being maintained. Looking ahead, it is argued that the railway modernisation plans will open the way to a good up-

ward trend in earnings and higher dividends.

Compared with a week ago, Beyer Peacock have risen afresh to 49s. 9d., which is the highest level so far touched this year and compares with 48s. 3d. a week ago. Charles Roberts 5s. shares were well maintained at 9s. 3d. while Hurst Nelson held their recent rise to 39s. 6d. at Glasgow. North British Locomotive rallied strongly from 17s. 3d. a week ago to 18s. Birmingham Carriage shares were 34s. 4½d., compared with 33s. 1½d. a week ago. G. D. Peters kept at 36s. 3d., but the quotation does not appear to have been adequately tested by dealings. Vulcan Foundry strengthened to 30s. 3d., but Gloucester Wagon 10s. shares at 18s. eased slightly. Wagon Repairs 5s. shares were strong at 17s. 9d., compared with 15s. 10½d. a week ago.

Among overseas rails, the main feature has been investment buying of Canadian Pacific 4 per cent preference stock, which, compared with a week ago, has advanced from £72½ to £76½. This stock is non-cumulative as to dividend, but the dividend is of course extremely well covered and the yield of over 5 per cent is certainly attractive. Canadian Pacific 4 per cent debentures, however, have not held best levels at £91½, but the ordinary shares moved up further from £53 to £53½, the highest price so far this year.

White Pass remained an active feature, and have advanced from \$37 to \$38½, with the convertible debentures £127, and the loan stock £34.

Midland of Western Australia kept at 22½ with the first debentures again 92½, but the second debentures eased from 44½ to 42.

Nyasaland Railways 3½ per cent debentures, although xd., kept at 79½; the shares remained at 5s. 9d.

In Indian stocks, Barsi were again quoted at £92½, but the quotation has not been tested by recorded dealings since September.

A fair amount of business was again recorded in Antofagasta stocks with the ordinary and preference both fractionally lower at 9½ and 48½ respectively. The perpetual debentures were again quoted at 52½ with the 5 per cent debentures 72½. Dorada ordinary stock was inactive again and a point lower at 79. Peruvian Corporation issues kept at the lower levels recorded a week ago with the exception of the 6 per cent debentures, which rallied from 57½ to 59½.

United of Havana second income stock was again 35½ with the consolidated stock at 5. Mexican Central "A" debentures were fractionally easier at 75. San Paulo units were 3s. 4½d., Nitrate Rails shares again 19s. 3d., Taltal shares 14s. 6d. and Brazil Railway bonds 7½. In other directions, Chilean Northern first debentures were 32, Guayaquil & Quito first debentures again 59 and Paraguay Central 6 per cent debentures 20½.

Engineering and kindred shares remained quieter at the beginning of the week, because of the large sums of money which were absorbed temporarily in the very heavy oversubscription of the Dorman Long issue. In fact, it is being suggested that a steady upward trend is likely in steel shares, though because of the political risk of re-nationalisation in the event of a future change of Government, they must of course be expected to fluctuate according to political news and developments. Nevertheless, the view seems to be growing that even in the event of a change of Government in the future, steel might not be re-nationalised.